

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

This is the authors final peer-reviewed manuscript accepted in International Journal School and Psychology Jan 2016

School Teachers' Traumatic Experiences and Responses in the Context of a Large Scale Earthquake in China

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### **Abstract**

This article investigates the traumatic experience of teachers who experienced the 2008 earthquake in Sichuan, China. A survey measuring participants' personal experiences, professional demands and psychological responses was distributed to 241 teachers in five selected schools. Analysis of responses indicated that teacher resilience and wellbeing are influenced by school post-disaster management and the interrelationships between school teachers and their social structure such as the relationship with family, friends, students and colleagues. Results also suggest that rebuilding a safe and supportive school environment after a natural disaster is one of the essential elements during the school reconstruction process.

**Keywords:** Post-disaster situation, Traumatic experience, Teacher resilience and well-being

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### **The Impact of the Earthquake**

The Sichuan-earthquake occurred at 2.28pm, May 12th, 2008, and measured 8.0 on the Richter scale. It was a devastating and deadly natural disaster without comparison in the past three decades in China (Yang & Chai, 2010). 69,227 people were confirmed dead by September 2008, 374,643 injured and 17,923 missing. A total of 17,951 educational institutions were fully or partially damaged, losses to the education sector are estimated at CNY4, 676 million reported by Asian Development Bank (ADB, 2009:24). The collapse of school buildings killed more than 9,000 school children and teachers. This accounted for 12% of the total number of victims of the Sichuan-earthquake (Fu, Nilsson & Hu 2010).

Beichuan County of Sichuan Province was one of the most devastated regions, it is a Qiang Minority Autonomous region - part of the Chinese Minority heritage. It was situated just 85 miles from the epicentre and 4 hours north of Chengdu, the Provincial capital of Sichuan. Beichuan was a quiet, peaceful and beautiful region, but after the earthquake, half of its population ended up as casualties, and the town was described as “a city of ghosts” and “a vision of hell” (Coonan, 2008). In order to prevent the possibility of a pandemic, the disaster rescue workers were required to dump all victims' corpses into a gigantic construction site and the whole of the original Beichuan region is now deserted. A great number of survivors suffered traumatic losses on multiple levels: personal and professional, physical and psychological (Zeng, Bordeaux & Silverstein, 2011:500). Some recent studies about the impact of the Sichuan earthquake on survivors' mental health disclose that the prevalence of post-traumatic stress disorder (PTSD) symptoms ranged from 9.4% to 45.5% (Higgins, Xiang & Song 2010; Wang, 2009).

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### **Psychological Service and Support within the Chinese context**

Natural disasters occur everywhere but different contexts, social and economic statuses, cultural and geographic conditions are often very different between each event and it cannot be assumed that models and strategies apply everywhere (Canada et al., 2007). Odhiambo and Hii (2012) take the same view. Their studies of community post-disaster management in Sri Lanka asserts that if school/community leaders want to establish a systematic disaster recovery model, they need to consider school/community context, school size, rural or urban, multicultural or not, higher or lower socioeconomic state. The need is to focus more on leading those within the various types of communities' post-disaster situation (PDS) than to standardise leadership to a single picture of responding to government requirements (Smith & Riley, 2012).

In a developing country such as China which suffers different kinds of natural disasters every year, little attention was paid to the field of developing a psychological service and support team for an organisation or a school before the Sichuan-earthquake (Sun, Xiao & Lan 2010). Although the Chinese Disaster Emergency Management Office of the State Council was established in 2006, this office is only in charge of the rescue work in the immediate phase. In China, the type and timing of funding, policies, and technical assistance provided by the disaster recovery assistance network often come with bureaucracy attached and disaster victims may have to wait passively in long queues for basic supplies and other resources (Higgins, Xiang & Song 2010). This may engender long-term dependence on national programs that are often ill-equipped to address basic problems faced by disaster-hit areas (Ying, 2013). The disaster management skills, capabilities, information resource and evaluation activities are far from proficient (Ritchie & MacDonald, 2010).

Schools have been the focus of the Chinese education effort, "School Post-Earthquake Rehabilitation and Reconstruction in Sichuan" was the first Chinese specific

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legislation and policy for a school PDS, laying the cornerstone for a legitimate post-disaster recovery plan (The State Council, 2008). The legislation and policy define the clear guidelines and regulations for a school PDS, including transitional settlements, disaster assessment, financing and policy support (Xu & Feng, 2012). The government and public believe that the appropriate application of an aid policy can reduce the disaster risk and improve the regional social and economic development. At the same time, school leaders and teachers are more accountable than ever for providing every child with a quality education and moral support (Kong et al., 2010). Some have questioned whether a quality education can be provided in an environment where there are many natural disasters and the safety of students and teachers is at risk (Brix, 2009). This was difficult to explore due to the lack of research that focuses on school leaders and teachers' resilience in a school renewal process after a disaster in China.

The trauma-related intervention mechanisms such as Support for Students Exposed to Trauma (SSET), based on the Cognitive-Behavioural Intervention for Trauma in Schools (CBITS) format have been shown to be effective on children's recovery process (Openshaw, 2011:166). This intervention could be largely achieved by enhancing social disaster prevention awareness and strengthening psychological support systems. It is essential that the public understands the basics of earthquake hazards and have the knowledge to protect themselves and their children in traumatic situations as Xu (2011) recognise. Unfortunately, the psychological intervention system in China is inadequate in providing the required information, data, social support and public awareness. Therefore, it needs reform to a recovery model which contains responsible institutions and departments, an example being demonstrated in the flow chart of their function during and after a natural disaster (Ying, 2013).

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Schools faced extensive reforms in the earthquake areas in Beichuan, cultural sensitivity is an important and invisible feature which usually undermines a school's recovery process if school leaders do not have the vision to identify the importance of the cultural conflicts during the PDSs (Nastasi et al., 2010). In the past, China's psychological support was provided by external experts or non-government organisations (NGOs) that were given the task of managing the PDSs, taking over the whole responsibilities of the school members (Wang, 2009). The issues with this approach were quickly identified and current approaches involve the cooperation of both external psychological support and school senior staff who can sustain the overall responsibility for responding, coping and recovering from the disasters regarding a long-term strategy (Zhao, Taucher & Lu, 2010). In general, external psychological support cannot serve as a long-term strategy because when those psychologists provide services to a PDS, they are unlikely to be familiar with the local culture, school environment, staff, students when compared to the school senior staff. It is also very expensive to keep an external psychologist based in a single school in China.

Besides, the external psychologists usually come from cities in China; they may need time to adapt and familiarise themselves with the local culture where they need to serve but the situation cannot wait until the cultural conflicts disappear. Some external experts may find it difficult to serve in such a situation or some of them may use the one model strategies for all conditions (Şahin, Batıgün & Yılmaz, 2009). Therefore, the key principle of the new approach is that the affected schools remain responsible for identifying and organising the PDSs and identifying where and what additional external psychological supports or resources may be necessary. In doing so, not only are unnecessary costs reduced but school-based disaster practice is improved (Yang & Chai, 2010). This interconnected post-disaster practice has been perceived as a success in PDSs records a report disclosed by China Daily (April 14th, 2013). There was a quote by a government official that "...we have learned lessons

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from the Sichuan-earthquake...". These lessons were to collaborate with both external supports and internal senior teachers during the school renewal process. School teachers are required to give assistance to the external groups such as interpreting local language and culture, and organising activities and collecting feedback. At the same time, teachers can learn skills and expertise from the process which could help them to build the confidence to cope with PDS issues alone in the future (Lei, 2014). This new collaborative disaster response strategy was also utilised effectively to respond during/after the Ya'an earthquake in Sichuan Province, China in 2013.

School communities have become increasingly vulnerable to numerous threats to safety from natural disasters. A school-based psychological service has become a priority in educational policy agendas internationally (Smith & Riley, 2012). It continues to play a prominent role on the stage of school recovery and development following a natural disaster. As China seeks to adapt its educational system to the needs of contemporary society, school leadership expectations are changing. In line with these changes, the roles and responsibilities of school teachers have expanded and intensified (Yang & Chai, 2010). Given the increased autonomy and accountability of schools, an effective leadership in a PDS at the school level is more important than ever (Zhao, Taucher & Lu, 2010).

### **The Role of Teachers in PDSs**

There is a debate about *how* and *who* should deliver school-based psychological intervention programs to children in order to promote a more effective recovery from a major disaster? Some researchers (Damiani, 2011; Widyatmoko et al., 2011) argue that school teachers would be an ideal group of people in managing students' traumatic issues as long as they receive appropriate training. They believe teachers are able to identify children's traumatic symptoms and some of the possible reactions in a timely manner. This will then

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enable teachers to put various coping strategies in place to reduce the long-term risk of behavioural and emotional issues (Henderson & Hildreth, 2011).

Other studies also support school teachers directly working with children when they encounter a natural disaster or crisis (Ahtola & Kiiski-Ma'ki, 2014). They state teachers are the ones who actually control the children's environment and, thus, are in the position to influence their everyday life. Widyatmoko et al. (2011) research surveyed over one hundred school teachers about the 3,115 students' PTSD symptoms after the Central Java-earthquake in Indonesia, 2006. The findings suggest that teachers are an effective human resource for assessing traumatised students, and they believe that teachers have the capability to identify students' specific distress if they are provided with basic information about PTSD symptoms.

As Brixi (2009:24) suggests, psychological training should encompass the future educational needs of children in a traumatic situation in terms of the textbook, content, teaching material and teaching approaches, then professionals would be more knowledgeable when it comes to monitoring children's trauma and recovery after a disaster or crisis in schools. Although his research focused on developing social workers' skills for helping school children' recovery after a crisis, it suggests that if a professional training program is implemented appropriately for school teachers who are willing to take a caregivers' role, and monitor children's recovery process, it would make children's recovery more efficient.

Similarly, Townsend (2011) recommends that teachers should be able to deliver intervention programs, but they may be required to take a psychological training course. If teachers are equipped with sufficient knowledge and coping skills then they will be more confident and willing to take the role when they are needed. An outcome of this strategy may be that teachers are encouraged to make decisions and show their leadership (Wolmer et al., 2011).

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In the context of this study, the proposition is that school teachers are one of the most valuable people for children's effective recovery even though they are victims of the disaster as well and they require special attention if they are expected to be the front-line troops in assisting the recovery of traumatised students and the school community. Similarly, this proposition has been recognised by Cohen and Mannarino (2011), they indicate that school teachers are viewed as being in a position to support students' emotional and behavioural needs during traumatic events. Little attention has been paid to identifying and addressing school teachers' trauma, and whether they are capable of coping with PDSs, and how those traumatic experiences affect their resilience and well-being.

### **The Role of Resilience and Wellbeing**

In the VITAE research, Gu and Day (2007) believe resilience can be understood from two perspectives: the psychological construct and the multidimensional, socially constructed concept. Which means teacher resilience can be described as determined by personal, professional, emotional, social contexts and settings (e.g. the school). They identified three scenarios that suggest how teachers balanced their personal, professional factors and school situations throughout their teaching career. In a teacher personal scenario the resilient teacher attempted to find balance among these three components; whereas, in the other two situations one or more of these components either became dominant or teachers could not manage any of these scenarios. From Gu and Day's research, it can be understood that a resilient personality is not sufficient to ensure individuals' competence socially and academically, rather, one must draw upon all their personality, environmental and social resources to increase competence (Lei, 2014).

Nevertheless, it can be argued that the characteristics of resilience are connected to personal (internal capabilities) or professional (external) factors or both, it appears essential to understand a multi-faceted and unstable construct of teachers' resilience and how this

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resilience might be promoting their recovery after a disaster. The idea of resilience deployed here interacts with the grief, struggle and suffering of the recovery process of PDSs, but focuses more on a positive adaptation within the context of significant adversity than on the vulnerable processes by which the teacher reacts to the risk situation (Malcom & Combes, 2007:19-20).

School as an organisation and the external/working environment can significantly affect teachers' well-being in positive and negative ways (Bizumic et al., 2009). Perceived negative life and job satisfaction in PDS, for example, can affect teachers' mental health (Nastasi, Overstreet & Summerville, 2011), and schools' practices have been linked to teachers' stress levels (Wood & Olivier, 2008; Şahin, Batıgün & Yılmaz, 2009). PDSs brought unexpected challenges to the classroom which would lower teachers' psychological well-being and academic performance (Alvarez, 2010; Bridges & Searle, 2011).

Many teachers themselves suffer from loss after a major disaster such as lost loved ones, homes, finance, medicines and nutrition, and suffer emotional disturbances (Bokszczanin, 2011; Lei, 2014). They may lose all their usual social networks and friends, and they often feel 'why me?' which further increases their sense of helplessness (Shen, 2009; Xu & Feng, 2012). The death of students and colleagues were shown to be particularly stressful, with 87% of teachers ranked as suffering from the experience of such loss as reported by Yang and Chai (2010).

The transmission of trauma from students to teacher occurs due to the teachers' identification with the students' suffering (Kliman, Oklan & Wolfe, 2008). If teachers cannot receive support in time then they are likely to be less effective in dealing with students' needs and are likely to be suffering "secondary posttraumatic stress" (Dean et al., 2008). These stresses are exacerbated by the experience of being unable to find a release for the emotional

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impact of this collective trauma, or any sense of satisfaction gained from supporting their students (Bizumic et al., 2009; Wood & Olivier, 2008).

The importance of resilience in teachers can be explained by three aspects. Firstly, teachers can be a positive role model for students in that they are a primary source in demonstrating the positive features of recovery and resilience (Alvarez, 2010; Bridges & Searle, 2011). Secondly, teachers' resilience is closely allied to a strong sense of vocation, self-efficacy and motivation to teach which are fundamental to a concern for promoting achievement in all aspects of a student's life (Gu & Day, 2007: 1302). Finally, higher teacher resilience could result from adopting desirable coping strategies, which facilitate recovery from the traumatic experiences (Damiani, 2011; Widyatmoko et al., 2011). Moreover, higher teacher resilience promotes warm interpersonal relationships with students by creating a supportive learning environment (Gunderson, 2010), which in turn positively influences traumatised students and benefits their academic performance (Bokszczanin, 2011; Openshaw, 2011).

One of the ways to improve teachers' resilience is to master the changing environment, and to learn about resilience and how to stay positive in a traumatic situation as well as knowing what they need from their educational communities (Goldstein, 2009). Another equally important way to improve teachers' resilience is to acquire adequate knowledge and confidence during trauma-related or psychological training after the disaster so they can transfer the knowledge into actual practice. An effective way in doing so is by putting knowledge into practice through mirroring real situations such as dealing with PDSs. A teacher resilience system is not only necessary to deal with job demands and to "get things done", but it is also important in self-actualisation (Casper, 2011; Reeves, 2008). On the contrary, a lack of resilience may have negative effects on teachers' well-being, that is, increase levels of stress (Kimiecik, 2010).

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Toland and Carrigan (2011:96) have analysed some factors which may influence teachers' well-being. They believe through a socio-ecological structure, school and social environment is very important in determining the level of social and emotional well-being of teachers. For instance, a safe and resilient school environment, warm relationships between leaders, colleagues and students actively fosters teachers' social capability and well-being (Malcom & Combes, 2007). However, Tartakovsky (2009) believes that the levels of teachers' well-being are largely based on disaster-related stressful experience, with time, teachers learn to cope with these stressors, and their well-being level recovers accordingly.

Other studies (Rumsby, 2009; Skakon et al., 2010) believe an appropriate support network providing clarity about boundaries from teachers' work environment is the best means of restoring well-being. According to Ryff and Singer (2008), people who have experienced a traumatic event, have their well-being permanently damaged, and their mental health remains worse than pre-event. A debate has begun, but an unarguable fact is that focusing on enhancing people's strengths and resiliencies is one of the most effective ways of helping them overcome a traumatic experience.

### **The Present Study**

A review of the literature reveals that there has been very little discussion about teachers' traumatic stress and resilience within PDSs or how it might relate to practice. This study aims to bring these two concepts into PD scenarios and show its potential to enhance teachers' well-being in support of the school reconstruction process following the 2008 earthquake within the medium-term timeframe - (a period of two to four years after the earthquake) in Beichuan County, Sichuan Province, China. A conceptual framework that draws on Bronfenbrenner's (1989) socio-ecological system to suggest that resilience improvement and trauma management in PDSs emerge as a form of social structure. That is, school teachers' traumatic experience is largely conceptualised by school post-disaster

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responses and management capability, school's effective recovery is a key element that encapsulates school teachers' resilience levels (Cletenberg et al., 2011).

Bronfenbrenner's socioecological model (1979) includes the concepts of microsystem, mesosystem, exosystem and macrosystem. The microsystem is at the center of his model, the individual being influenced by personal, dispositional, and genetic factors (Boxer et al., 2013:164). The mesosystem encompasses the linkage between microsystem and another layer which doesn't involve directly the individual, but has influences for the individual (e.g. teachers' workplace). The exosystem incorporates "...one or more settings that do not involve the developing person as an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person..." (Bronfenbrenner, 2005:25). The macrosystem includes factors present in the larger culture, society, beliefs and ideologies (Boxer et al., 2013:164).

Given the nature of the current study, the partial version of Bronfenbrenner's ecological model is adopted. By looking at the micro-ecological perspectives in order to understand how the teacher develops, the family/home, school environments and peer relationships. The conceptual framework proposed is to ascertain school teachers' ecological-developmental structure in coping with both personal and professional relevant trauma in a PDS. The personal layer refers to teachers' intrinsic capability, personality, and family-related traumatic experience, and the professional layer ties to teachers' social-status/stress and work conditions (Odhiambo & Hii, 2012). Those interrelationships are linked closely in reflecting the daily functioning of teachers/individuals (Bemak & Chung, 2011; Deci & Ryan, 2008). It plays a key role in shaping both the trajectory of school development and the pupils' health-and learning-related issues (Sun, Xiao & Lan, 2010).

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The study was conducted over a four-year period between 2009 and 2013. This paper presents the quantitative part of a larger mixed method study that aimed to seek answer to the following research questions:

1. What is the impact of the earthquake on school teachers' personal and professional experiences over the medium term (2 - 4 years)?
2. What were the general conditions under which school teachers worked?
3. What strategies do school teachers employ in response to traumatic stress to increase their resilience, in order to help them teach effectively within a PDS context?

### **Method**

#### **Participants**

A survey was conducted among five schools located in Beichuan County in the northwest part of Sichuan, Southern China. This area was heavily damaged by the earthquake and had issues of family breakdown, unemployment, redevelopment and interpersonal conflicts (Lei, 2014). 83 educational institutions were fully or partially destroyed including the five sample schools of this study, and all the schools in this area were rebuilt. The names of the schools are fictitious (Primary school A - C = PA - PC; Secondary school A - B = SA-SB) in order to respect their confidentiality. A total of 241 surveys were distributed to teachers of the five target schools (K-stage1-3) during April and May 2012. 228 questionnaires were sent off and 206 questionnaires were returned, 10 of which were incomplete and thus will be disregarded in the analysis. The distribution rate was 83% and the actual response rate was 90%.

There were 71 male (36.2%), 121 female respondents (61.7%) that shared this information respectively. 9 participants stated their position as "Below Junior", 98 teachers (50%) have achieved a "Middle position", 63 teachers (32.1%) occupy a "junior position" and 21 teachers (10.7%) hold "senior positions" in the sample schools. Regarding

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qualifications, 105 teachers (53.6%) have received a “Bachelor” degree and 87 teachers (44.4%) hold qualifications “Below Bachelor”. None of the teacher participants has a “Master” or “Above Master” degree.

The below 30 age group has the highest frequency while the 30--39 comes next. The lowest frequency group was the oldest age group (>50). The range of years of teaching experience of the participants varies quite significantly. The highest frequency groups were more than 20 and fewer than 5 years' experience (30.1% and 27.6% respectively). Participants with 10-14, 5- 9 and 15-19 years' experience made up 16.3%, 12.2% and 10.7% of the sample respectively. The majority of the respondents 60.2% (n = 118) were teaching “Major subjects” (Chinese Literature, Maths and English). There were 117 participants teaching K-stage 1-3 and K-stage 4-6 of students aged 6-12 years old.

For the range of national culture, 71.4% of the participants come from the Han culture, the rest of the participants come from Qiang culture. Consequently, the data analysis of this study should take the local Han culture into account, but does not discount Qiang cultural influence in Beichuan people. The Han Culture is the largest ethnic group in China's population (92%), and Qiang culture is one of the other 55 ethnic groups. There are more than 300, 000 Qiang people living across Beichuan Qiang Autonomous region in Sichuan Province. As a result of the earthquake, quite a large number of Qiang people died or were severely affected during the 2008 earthquake (Xu, 2011:80).

### **Sampling**

In order to select representable sample schools, a checklist of destroyed schools was developed based on a range of criteria relating to the purpose of the research. The criteria included the damage level of the school, population of the school, education and income of the school teachers, death or injury of the school staff, students and their families. The last criterion but most important was the accessibility of the school head teachers because they

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are judged to have an essential impact on the school reconstruction process and the effectiveness of school key stakeholders' recovery. Five severely damaged schools were chosen to avoid potential confounding factors between degrees of destruction (e.g. severe or moderately damaged schools).

The feature of choosing the sample means a purposive sampling approach was involved. Purposive sampling involves selecting particular cases or units "based on a specific purpose rather than randomly" (Cohen, Manion & Morrison, 2009:115). Such sampling can be an essential strategy in accessing a body of participants who are relevant to the research questions (Dörnyei, 2007). The criteria of participants for the teacher survey were as follows: school teachers who have experienced the 2008-earthquake and have been involved in the educational reconstruction process. Permission to survey these participants was given to the study by the local Chinese Ministry of Education.

### **Procedures**

The research design consisted of four phases. The focused group interviews were the first phase which was to generate a valid instrument for phase two (Teacher Survey). During this phase, group interviews were conducted with head teachers, teachers and local educational leaders in order to elicit "insider" perspectives and experiences of the essential issues corresponding with the aims and objectives of the study. The second phase was a quantitative teacher preliminary survey conducted in one sample school with 100 school teachers. The purpose of this phase was to validate the internal reliability of the instrument before study-2 took place. The third phase involved the identification of the areas where the teacher survey was conducted and the collection of the study-2 quantitative data as well as, piloting semi-structured interviews with teachers and head teachers. In the last phase, the finalised version of semi-structured interviews was carried out with the teachers and

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headteachers to gain a more full understanding of the complexities of responses elicited from the quantitative survey.

Given the constraints under which the paper is written, the quantitative data (the third phase) is presented as it is the most relevant to the aim of this paper. The questionnaire was used because it sought to collect standardised responses from a reasonably large number of participants. It allowed for the gathering of quantitative estimations of the impact of the earthquake, measured according to the criteria of teachers' coping responses, and of the presence or absence of school organisational factors that are thought to help or hinder teachers coping following the earthquake. The questionnaire for this paper was developed on the basis of the findings from the researcher's earlier preliminary study (Lei, 2014) aligned with the outcomes from a review of international literature. The preliminary study was conducted in a primary school in Beichuan not participating in the actual study. Some questionnaires were delivered through a face-to-face data collecting technique, and some of them were distributed by the head teachers through a routine teachers' meeting. There were about 250 staff in the chosen schools and a response rate greater than > 70% was considered appropriate (Cohen, Manion & Morrison, 2009).

The frequency was rated on a five-point Likert-type scale ("strongly agree" = 5 to "strongly disagree" = 1). The data was analysed using the SPSS v.20 software package. This statistical package is most commonly used for researchers, to perform mathematical analyses to convert raw data into meaningful numerical or graphical descriptions (Creswell, 2005). To give each question its own identifier they were sorted into a logical order, using a clear "coding procedure" the first step in raw data processing (Dörnyei, 2007). After converting the respondents' responses to numbers, each code should be meaningful and clear to the researcher and the software package in order to facilitate a complex process of statistical analysis. Annotations were made with the number for each question from the SPSS

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spreadsheets to produce the required analysis. For example, gender data was annotated 'sex' and coded 'male'=1 and 'female' = 2.

### Measures

Statistical tests used in facilitating the quantitative analysis of this study including Factor analysis, Shapiro-Wilk test, Mann-Whitney and Kruskal-Wallis. The reason for employing these statistical tests is discussed as follows. To effectively manipulate the data "...the parallel items need to be summed up in 'multi-item scales'... this process should involve creating fewer but broader variables that carry almost as much information as the original variables" (Dörnyei, 2007: 206). A factor analysis procedure is most commonly used for this purpose and it suggests that those items put together should behave in a homogeneous manner. That is, each item on a multi-item scale should correlate with the other items and with the total scale score, which has been referred to as Likert's criterion of "internal consistency" (Dörnyei, 2007).

The findings were clustered into three sub-scales (see Table 1) which were based on the internal reliability measure and the principal components analysis (PCA). The reliability of the sub-scales was calculated using Cronbach's alpha. PCA was used as an exploratory approach to the data that allows researchers to gather information about relationships among variables and the hypothesised relationship between those variables and the underlying traits (Field, 2010). Sub-scale 1: "Teacher's personal experience" (Q1.1 - Q1.8) did not need to be factor analysed because each variable only required a straightforward answer (Yes/No frequencies) and also those variables measured the same target area. In sub-scale 2: "Teachers' professional demands", a three factor solution was deemed by PCA to be the most interpretable (Q2 - Q15, statistical factors loading see Table 2). The three factors were labeled as F1 = Teaching Methods Changes (TMC); F2 = School Management Changes (SMC); and F3 = Work Load (WL). Four factors were identified under the sub-scale 3: "Psychological

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responses to PDS" (Q16 - Q40, statistical factors loading see Table 3). These were labelled as F1 = Resilience; F2 = Life and Job Satisfaction (LJS); F3 = Positive Emotions (PEs); and F4 = Negative Emotions (NEs).

In order to identify the sub-scales from the questionnaire a computer code is given for each item. A breakdown of figures of the percentage (%), means (M), median and standard deviations (SD) in each sub-scale are reported in Tables 4-7 as follows. The Shapiro-Wilk test ( $p = .05$ ) was used to test the normality of the data that was collected for each question. This test suggested that the frequency distribution for the data of this study is skewed. Therefore, Field (2010: 539) suggests the median is a better measure of central tendency than mean to provide the appropriate central location for the data in this situation.

The nonparametric Mann-Whitney test (equivalent of the T-test) and Kruskal-Wallis Test (equivalent to the one-way ANOVA) are used in the Results section. The Mann-Whitney test compares whether or not there is a statistically significant difference between the different groupings in the data based upon independent variables. This test is performed on ranked data which has the advantage of not requiring the assumption of normality or the assumption of homogeneity of variance (Field, 2010: 539 - 540). It compares medians rather than means and, as a result, if the data has one or two outliers, their influence is negated. The Kruskal-Wallis Test ( $p = .05$ ) is an extension of the Mann-Whitney test to allow the comparison of more than two independent groups (Field, 2010:540). The comparison between the responses from the five individual schools is tested in Table 8-9.

## Results

### Sub-Scale 1: Teacher's Personal Experience

Sub-scale 1 explored teachers' personal experience during/after the earthquake. 59.7% of the participants pointed out that their home had been damaged moderately ( $M = 2.62$ ). 4.6% of the participants' homes had been destroyed completely. 3.6% of the participants had

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experienced “I have witnessed or experienced the death of my spouse or child” (Q1.1). 92.9% of the participants showed that they feel their lives are returning to normal after the disaster and losses, however, 6.1% of the participants revealed a negative aspect towards the normality of their lives. The statistical description is reported in Table 4 below.

### **Sub-Scale 2: Teachers' Professional Demands**

Table 5 (Q2A-Q15A) and Table 6 (Q2B-Q15B), report the frequency, means and standard deviations of sub-scale 1, which refers to participants' ratings of their professional demands during the school reconstruction process after the earthquake. Overall, the majority of the participants (74%) indicated that 14 statements were related to their experiences, 24% of the participants displayed statements which were not related to their experiences. Four factors have been strongly recognised by the participants (over 80%) that contributed to teachers' traumatic stress during the school rebuilding process. These are “new procedures for teacher performance evaluation” (Q5A; 89.8%); “taking too much responsibility for students” (Q11A; 85.7%); “using new technological equipment for teaching” (Q1A; 84.2%) and “workload” (Q7A; 83.2%).

“Taking too much responsibility for students” (Q12B) and “new procedures for teacher performance evaluation” (Q6B) ranked highest with the means of 3.50 and 3.09 respectively, followed by the variable “work overloading” (Q8B) with the mean of 3.30. The lowest ranking of stressful experience was observed in Q9B ( $M = 1.80$ ,  $SD = 0.931$ ). This question referred to the teachers' perceptions about the “new colleagues to adjust to”. These results indicate that the participants are getting along well with new colleagues and they do not consider this to be a stressor.

### **Sub-Scale 3: Psychological Responses to PDS**

Table 7 shows the descriptive statistics of the findings of the questions 16-40. Generally, the participants' statements were quite consistent and the degree of agreement was

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mostly rated from 4.15 to 3.79 for “resilience” (Q16- Q24). “Life and job satisfaction” (LJS) associated with the questions 25-28 followed very closely where a small range of mean values fell between 3.71 to 3.35 together with the standard deviation values of .971 to 1.115. Items 29-34 were constructed to identify the degree of the teacher’s “positive emotions” (PEs) as well as Q35-Q40 which were designed to indicate the degree of the teacher’s “negative emotions” (NEs). Question 34 “I feel able to keep good relationships with students” was rated highest ( $M = 4.07$ ) and Q32 “I have all the support I need from my school leadership” was rated slightly lower at 3.55. Q37 stated “I am not interested in most of the things that I used to enjoy”, recorded the greatest level of disagreement ranked with the mean of 2.75. This suggests that participants have a positive attitude towards their future lives.

### **Comparison between Primary and Secondary Schools**

The Mann-Whitney test operates at the  $p = 0.05$  significance level in this study. This test is used to compare teachers’ traumatic experiences and resilience between the primary school and the secondary school. The tests showed (see Table 8 below) that there is no statistically significant difference in teaching methods changes (TMC) between primary and secondary schools with a  $p$  value of 0.22. Comparison of TMC suggested that school type (primary or secondary) was not a significant variable in teacher responses. Work load (WL) was also not significant with a  $p$  value of 0.77. However, the variable of school management changes (SMC) showed a highly significant difference ( $p < 0.001$ ) between responses from primary and secondary schools.

The concern now is how to define which school teachers suffered higher traumatic stress level than others. Hence, post hoc analysis ( $p = 0.05$ ) was performed for situations in which there is a significant finding obtained to ascertain exactly where the differences lay. The result suggested that secondary school teachers generally reported higher traumatic stress ( $n = 85$ ;  $M = 3.03$ ) based upon the variable “SMC” than primary school teachers ( $n = 111$ ;  $M$

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= 2.41). There is no overlap between minimum and maximum estimates of the mean for primary and secondary schools at the 95% confidence interval. Detailed statistical descriptions are reported in Table 9.

Table 10 shows the statistical analysis reports the significance test for the null hypothesis for the distribution of resilience, PEs and NEs cannot be rejected as these variables returned  $p$  values higher than 0.05 ( $p = .14$ ;  $p = .09$ ;  $p = .18$  respectively). Again, comparison of resilience, PEs and NEs suggested that school type was not a significant variable in teacher responses. However, the null hypothesis for the distribution of LJS can be rejected ( $p < .01$ ), which suggests there is a significant difference between responses from primary and secondary schools on the basis of the LJS variable. Similarly, post hoc analysis ( $p = .05$ ) described how primary school teachers showed a higher LJS response ( $M = 3.81$ ) than secondary school teachers ( $M = 3.41$ ) see Table 11 below.

### **Comparison of responses from the five individual schools**

The Kruskal-Wallis Test ( $p = .05$ ) showed that the factors “school management change (SMC), work-load (WL), life and job satisfaction (LJS), positive emotions (PEs),” varied significantly, and the  $p$  values for these variables were reported respectively as  $< 0.001$ ,  $= 0.008$ ,  $< 0.001$  and  $= 0.05$  (see Table 12 below). However, the variables “teaching method change (TMC), Resilience, negative emotions (NEs)” were not found to be significantly different among the five schools ( $p = 0.08$ ;  $p = 0.13$  and  $p = 0.15$ ). Post hoc analysis ( $p = 0.05$ ) suggested that there is a significant response revealed from by PA ( $M = 2.27$ ) and SB ( $M = 3.29$ ) based upon the variable “SMC”, and there is a significant difference between PA ( $M = 2.25$ ) and PC ( $M = 2.98$ ) concerning the variable “WL”. Concerning the factors LJS and PEs, there is a statistically significant difference between PC (LJS:  $M = 3.96$ ; PEs:  $M = 4.25$ ) and SB (LJS:  $M = 3.30$ ; PEs:  $M = 3.82$ ) amongst both factors ( $p < .05$ ). Detailed descriptive statistics (post hoc analysis) are attached in Tables 13- 18.

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### Discussion

The purpose of this study was to examine the impact of the Sichuan - earthquake on school teachers' personal and professional trajectory in China. Although the status of school teachers' trauma in a PDS has been explored in other countries, to date no comparable study has been made in China. The findings of this study address the literature gap by providing a picture of school teachers' personal and professional experience, their working conditions and coping strategies in a PDS.

Sub-scale 1 (Table 2) concerning a number of teachers who themselves suffered from the earthquake and had to face the overwhelming realisation of the death of their family members (3.6%), colleagues (24.0%), students (24.0%), friends and neighbours (41.8%). From the teachers' survey results, 59.7% of the participants indicated their home had been moderately damaged and 24.0% of the participants had experienced their home being severely damaged.

The findings of this scale highlighted the traumatic experience teachers suffered which included physical and emotional responses, which over the long term may turn into exhaustion, depression, lack of interest in work or life in general, withdrawal from family and friends, avoidance and overwork (Bokszczanin, 2011). These responses can have a negative impact on teachers' family, social and work relationships and activities as Bizumic et al. (2009) believe. In such personal traumatic scenarios, school psychological support service need to tailor to individual teachers' needs. For instance, if teachers consider that their traumatic stress can be minimised by solving his/her personal issues such as having a comfortable home and being with family, then the school support service should not consider giving them professional training themes, regardless of their needs as further distress can be evoked (Wood & Olivier, 2008).

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Factor analysis of teachers' traumatic experience helped to identify three factors challenging teachers' professional practices during PDSs (sub-scale 2). The three factors were identified as teaching methods change (TMC), school management change (SMC) and work load (WL). The majority of the respondents identified that "taking too much responsibility for students" was one of the most professional demands after the earthquake. In this situation, teachers not only need to manage to get back to the regular curriculum they also have to monitor traumatised students and cope with their own trauma (Wood & Olivier, 2008). The specific knowledge and competence is required to handle those professional demands. Therefore, teachers should be professionally trained to intervene in cases of student trauma, without appropriate training, further damage could be caused to both teachers and students (Nastasi, Overstreet & Summerville, 2011). They believe teachers given a task they are ill equipped to handle can fail leading to a lack of self-confidence and reduced teacher efficacy. If students' behaviour is not getting immediate recognition or intervention then their recovery from serious emotional trauma can be delayed.

The findings also indicate that school teachers were forced to learn how to use new technology, new teaching equipment and developing links with social support including a network with new/unqualified teachers, colleagues, parents and community, and be responsible for traumatised students and stabilising those who are emotionally and physically affected (sub-scale 2). This result was similar to what Bridges and Searle (2011) discussed in the literature review, the transformation process could affect teachers professional functioning negatively, and students' traumatic experiences could be exacerbated. This intensity of transformation challenges teachers, they often felt incapable of coping with and overcoming what they perceived as an overwhelming professional practice or working condition (Shen, 2009).

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The responsibilities and responses contributed to a substantial “workload” (WL) for school teachers in PDSs, which has been identified from the results of this study. Workload seems to be a common issue facing school teachers even in a normal school condition (Bridges & Searle, 2011). However, the WL in a PDS is challenging and difficult to compare to a normal teaching situation. The challenges include working with traumatised students, identifying traumatic symptoms in them; the limited access to specialised services for students to get treatment and learning how to take care of themselves under traumatic circumstances (The researcher’s preliminary study see Lei, 2014). Teachers may recognise the struggles and issues students faced during the PDSs, but the lack of skills, training, information and resource hindered them in addressing those issues.

This result confirmed what Wolmer et al. (2011) had suggested that teachers feel uncomfortable in undertaking a psychological interventions’ role for children due to their lack of adequate knowledge and skills. Likewise, Bizumic et al. (2009:133) caution that many teachers are incompetent in addressing the needs of traumatised children which in some part may be due to them suffering the loss of their homes or suddenly facing the trauma of teaching in PDSs. Their personal issues having not been addressed they struggle to empathise with and address their students’ needs.

Sub-scale 3 was designed deliberately to disclose teachers’ psychological responses during the school recovery process. The findings suggested that the majority of teachers were able to show positive effects across both their personal and professional life following the two years of the earthquake. However, there were a number of teachers who did not cope well. The highest score perceived from the resilience variables indicated that teachers believe the difficulties they faced were temporary and that they could overcome them and things could get better (Table 5).

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The findings provided an encouraging indication that the experience of trauma as a result of the earthquake need not be entirely negative, and that it has the potential to strengthen positive outcomes. This result has been confirmed by Casper's (2011) study. He asserts that stressors from a traumatic event are not all harmful if it is not exceeding an individual's capacity to cope, although in some individuals' behavioural and emotional problems may occur. In some cases, stressors can be valued as contributing a positive challenge and serve as an incentive for enhancing an individual's personal development and growth because these experiences can be transformed into a "strength-and capacity-building process" (Reeves, 2008:14).

This result also supports an earlier statement by Gu and Li's (2013) that resilience in teachers is the capacity to manage the challenge adversity brings, this resilience is not simply getting by in difficult situations, it drives their moral values and professional commitment to serve the learning needs of the children during any circumstances. Several research papers disclose that a traumatic event can cause distress, disorientation, anxiety, and a decline in mental health, but a systematic social support and collaboration, psychological training, personal capabilities, and stability in the family system can all influence a teachers' recovery process in a positive way (Tartakovsky, 2009; Goldstein, 2009).

Resilient teachers often have stronger connections to school, students, family and colleagues, and if these social links are functional when facing challenges, teachers are less likely to develop traumatic issues (Bridges & Searle, 2011). Thus, it is apparent that improving teachers' resilience is significant and can develop their capability to cope with challenges in PDSs. Once teachers' resilience is enhanced, they are likely to influence their students positively and cope with students' issues more successfully (Williams et al., 2008; Malcom & Combes, 2007).

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Life and job satisfaction another indicator suggested that the majority of teachers were satisfied with their job and family life. The findings confirmed Gunderson (2010) suggestion of the importance of understanding teachers' needs, and promoting their welfare as being professionally intelligent and responsible. These needs may be inducing teachers to meet the needs of their students and fulfil their mission at the same time. Similarly, Gu and Day's (2007) research observed that pupils' progress and growth could literally stimulate teachers' job satisfaction and motivation. It is often necessary for school leaders to recognise that a clear sense of direction responds instinctively to the needs of school teachers, and to take stock of school teachers' emotional capacity to cope and be realistic about the duties they can perform.

From the indicator of teachers' positive emotions (PEs), a consistent positive attitude towards teachers' relationships with school colleagues and students was noted. As Toland and Carriganln (2011) emphasise a harmonious work environment comprising warm relationships between school members is conducive to recovery from a traumatic event. School teachers liked teaching and working with students and colleagues and supported each other which can contribute to a higher sense of resilience amongst teachers (Gu & Day, 2007). The concept of resilience with its emphasis on enhancing socio-ecological factors can be related to the role of teachers in coping with their personal issues and work environment (Gunderson, 2010).

Bridges and Searle (2011) identify that when teachers sustain a great deal of pressure, they may have expected school leaders to provide sufficient support so that they could satisfy their work-life balance. However, the result of this study contradicts the views of Bridges and Searle (2011). Teachers in this study appeared to be dissatisfied with their school leaderships' ability to manage a PDS, it also highlighted that some teachers were not satisfied with "their autonomy in position" (Table 5). Consistent with prior studies (Sun, Xiao & Lan 2010; Xu,

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2011; Ying, 2013), Chinese school-based PD recovery models in practice-related activities are literally non-existent. A school-based psychological support team is considered to be one of the effective practices and typically identified as very relevant to a traumatic event, however, Chinese school leaders seem to have not encouraged teachers to manage in a PDS, and even when they do, they may lack the competencies, experiences and technical support to offer the appropriate support.

For those who did not receive sufficient school leaders' support, they would not be satisfied with the school's management techniques. If a school has a capable leadership team with adequate supports, it could potentially boost a school's recovery towards a positive trajectory (Sun, Xiao & Lan, 2010; Bizumic et al., 2009). Their view has been confirmed from the comparative analyses of this study. The first comparison reported that secondary school teachers had a higher level of stress than primary school teachers when facing the SMCs. Further post hoc analysis discovered that primary school teachers had a better school support (Q32) and fewer students' traumatic issues (Q39) occurred in classrooms than secondary school teachers experienced after the earthquake (Table 7). Accordingly, primary school teachers showed a higher life and job satisfaction (LJS) and less stress than secondary school teachers (Table 8).

Other studies believe that a good school leadership is based on a supportive school environment (Cletenberg et al., 2011; Odhiambo & Hii, 2012). This view is complemented by Nastasi et al. (2010) that a positive school leadership includes school cultural norm, leader support, good relationships with colleagues, having colleagues who specifically support teachers' work during a difficult situation (e.g. PDSs), a helping system is available among teachers they feel safe at school and have a fair opportunity for professional promotion. These factors have important implications for schools engaged in post-disaster recovery in helping them to move forward more effectively.

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### **Conclusion and Recommendation for Further Research**

This study disseminates the school post-disaster intervention literature in an attempt to understand the nature of school teachers' traumatic experience to successfully deal with and learn from the post-disaster experiences they inevitably encounter. The challenge that emerges from this study is how to verify the necessary school-based psychological support that will be working in future school PDSs when natural disasters occur.

There were a number of factors which affected school teachers' work and life after the Sichuan-earthquake including Chinese educational policy and where they work (school environment), the ways they managed and were supported in managing PDSs, their beliefs and capacity to sustain a positive and resilient demeanour (sub-scale 3). These factors contributed positively or negatively to the teachers' capacities to cope with their professional work and personal life. A PDS can potentially threaten a teachers' motivation and resilience potentially making them less effective, most of the teachers in Beichuan region were continuing to face this complex situation, though many of them developed a strong sense of resilience and coped in traumatic situations and rebounded to normality (sub-scale 3).

Some coping techniques have been reviewed from the literature as well as the results of this study on resilience promotion including supportive leadership from schools, harmonious relationship building with others, a sense of interconnection, personal, social and professional efficacy, leadership and problem-solving skills, a sense of expectation in future achievement and life. If school teachers could draw on the same kind of coping strategies when it comes to future PDSs, the benefits would clearly enhance the ability of schools to cope in subsequent disaster situations .

The findings of this study have potential significance for educational practice, policy, and research. This study as it relates to psychological training for trauma relief and practical disaster drill activities sheds light on the issues involved in the preparation of school

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disaster management in the Chinese educational context. Such awareness helps policy-makers in education in the disaster regions, especially the Government bodies, to develop appropriate and effective strategies and policies to address the problems in PDSs. In education, it offers innovative concepts for needs-based practice involving responsibilities and capabilities in professional development in future teachers training, both from individual and organisational perspectives; a common focus on recognising intrinsic capabilities within an individual and how they are influenced socially and environmentally. This reveals a more subtle exploration of human potential resilience and perseverance than a sequence of planned development along predetermined pathways of external demands (Odhiambo & Hii, 2012).

The significance to the Chinese policy is that a stronger concept of school development after a natural disaster is presented than currently available. The participants of this research describe resilience as achieved, despite the challenges and stressful experiences. Policy-making for teachers' resilience-building is not just an emotional exercise, but involves practical recognition and profound human resource development. The major potential benefit to policy is conceptual coherence: it becomes possible to ally development in school teachers with that in students those they serve, educational establishments with school communities, and education policy with health, social and welfare policies; the same principle applies.

Although this research has identified important issues that have not been well studied in educational literature, it is necessary to acknowledge some of its limits. First, because of the restraint of the Chinese disaster policy in the educational sector, there was no way of closely observing and investigating school teachers' traumatic response and experience in the immediate aftermath of the earthquake. The research findings only indicate the school post-disaster phenomenon during the medium-term (2-4 years) of the earthquake among school teachers, if teachers' psychological status could have been captured in the immediate aftermath of the earthquake, a more concrete conclusion would have been made in

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order to understand their acute traumatic history, which could have enhanced our understanding of a teachers' resilience and stress management after a disaster in particular their improvement over time.

Secondly, the nature of the cross-sectional analysis and the constraints of the research design limit the scope of this study to implement Bronfenbrenner's ecological model in full. The results disclosed in the study reflected only the status of post-disaster related stress of the participants at a particular point of time. In other words, it did not reveal the changes of the stress level throughout the entire school reconstruction process (immediate - , medium - and long - term), nor is it able to reveal the relationship between the change of stress and the involvement of earthquake related experience.

Future studies assessing the long-term aftermath of disasters on school leadership capability and assessment systems are needed. The further insight into these issues may require longitudinal data that describe perceptions from a large group of stakeholders (students, teachers, staff and parents). To explore the various planning principles and alternative dispute resolution techniques which can facilitate the coordination of resources across the school-based disaster assistance network and help to address identified limitations in the existing assistance framework (Lei, 2014).

Finally, the researcher is aware that the partial quantitative findings presented in this paper may not provide in-depth information about teachers' feelings and experiences, however, the findings of this paper have helped in developing a follow up qualitative study. The follow up study aims to probe some of the complexities of responses elicited from the quantitative survey, in particular, whether the survey elicited the perceived factors of school PDSs on teachers' recovery. For example, why some factors influenced teachers' rather than others, and whether there is a correlation between teachers' work conditions and their ability to cope. Teachers' challenges and experiences following a traumatic event are complex and

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require multi-dimensional evidence in order to allow for an in-depth understanding of the subject's experiences. If the researcher attempts to understand how a school community reacts, why and which variations influence teachers' in real-life after the earthquake, it is important to understand the relative conditions at the time. The data from the follow up interviews will be presented in a separate paper.

To conclude, this study draws on international disaster reduction experiences in school post-disaster reconstruction and policy frameworks to be drawn up for improving school teachers' well-being after a disaster. The study emphasises the functional, practical and educational issues that need to be addressed in order to truly contribute to the well-being of school communities affected by the earthquake. Although the study reflects China's policy and educational contexts, the proposed framework is relevant for other developing countries.

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## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 1  
Results of internal reliability analysis of three sub-scales

3 Sub-scales	Factors	Variable name	Alpha	Item N
1. Teacher's personal experience		Q1.1- Q1.8	0.775	8
2. Teachers' professional demands	TMC	Q2-Q4; Q7;Q10	0.839	5
	SMC	Q5-Q6; Q12-Q15	0.720	6
	WL	Q8-Q9; Q11	0.655	3
3. Psychological response to PDS	Resilience	Q16- Q24	0.955	9
	LJS	Q25- Q28	0.895	4
	PEs	Q29- Q34	0.910	6
	NEs	Q35- Q40	0.880	6

*Note.* SMC = school management change; TMC = teaching methods change;  
WL = work load; LJS =life and job satisfaction; PEs = positive emotions;  
NEs = negative Emotions

Table 2  
Principal Component Analysis of sub-scale 2 (Q2B-Q15B)

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.720
Bartlett's Test of Sphericity	Approx. Chi-Square	472.725
	df	91
	Sig.	.000

<b>Component Matrix<sup>a</sup></b>				
	Component			Communalities
	1	2	3	
Q2_B	.598	.458	-.235	.623
Q3_B	.631	.343	-.286	.598
Q4_B	.587	.653	.179	.803
Q5_B	.699	-.343	-.131	.623
Q6_B	.551	-.453	.250	.572
Q7_B	.798	-.233	.181	.724
Q8_B	.440	-.668	.096	.648
Q9_B	.460	.653	-.189	.674
Q10_B	.545	.353	.445	.620
Q11_B	.719	.021	.116	.531
Q12_B	.356	.008	.809	.781
Q13_B	.664	.107	-.218	.500
Q14_B	.749	-.219	-.366	.743
Q15_B	.495	-.653	-.251	.735
Eigenvalues	5.123	2.615	1.437	9.175

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 3  
Principal component Analysis of sub-scale3 (Q16 - Q40)

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	Approx. Chi-Square	4403.307
	df	300
	Sig.	0.000

<b>Component Matrix<sup>a</sup></b>					
	Component				Communalities
	1	2	3	4	
Q16	.839	-.037	.358	-.093	.842
Q17	.860	-.059	.347	-.046	.866
Q18	.832	-.043	.374	-.039	.836
Q19	.854	-.024	.271	-.086	.811
Q20	.841	-.078	.293	-.104	.810
Q21	.821	-.104	.259	-.081	.759
Q22	.789	.020	.064	-.202	.668
Q23	.675	-.060	.021	-.164	.487
Q24	.829	-.045	.084	-.177	.728
Q25	.767	.084	-.206	-.247	.698
Q26	.769	.134	-.388	-.267	.832
Q27	.736	.167	-.392	-.288	.807
Q28	.581	.247	-.431	-.320	.687
Q29	.733	.136	-.134	.322	.678
Q30	.786	.055	-.094	.332	.740
Q31	.749	-.099	-.119	.380	.730
Q32	.655	.222	-.525	.167	.782
Q33	.757	-.037	-.095	.478	.812
Q34	.733	.001	-.014	.470	.759
Q35	.066	.758	.060	.002	.582
Q36	-.064	.821	.007	.118	.692
Q37	-.067	.807	-.035	.001	.657
Q38	-.073	.807	.190	.000	.694
Q39	-.101	.681	.323	.098	.588
Q40	-.106	.809	.097	-.082	.681
Eigenvalues	11.370	3.895	1.640	1.320	18.225

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 4  
The number and percentage of Sub-scale 1 (n=196)

Computer Code		Frequency	Percent [%]	Missing
Q1.1 Death of Family Member (Spouse/child)	Yes	7	3.6%	1
	No	187	95.4%	
Q1.2 Death of Friend	Yes	82	41.8%	1
	No	114	58.2%	
Q1.3 Death of School member (Pupil / Colleague)	Yes	47	24.0%	
	No	148	75.5%	
Q1.4 Death of People Do not know	Yes	57	29.1%	2
	No	137	69.9%	
Q1.5 Injury Family	Yes	72	36.7%	1
	No	123	62.8%	
Q1.6 Injury School Member (Pupil / Colleague)	Yes	51	26.0%	1
	No	144	73.5%	
Q1.7 Return Normal	Yes	182	92.9%	2
	No	12	6.1%	
Q1.8 Home Damaged	Completely	9	4.6%	23
	Severely	47	24.0%	
	Moderately	117	59.7%	

Table 5  
The number and percentage of Sub-scale 2 (n=196)

Computer Code	Yes		Not applicable		Missing
	N-size	[%]	N-size	[%]	
Q2A Teaching Equipment	165	84.2%	29	14.8%	2
Q3A Psychological Training	138	70.4%	54	27.6%	4
Q4A Psychological Treatment	155	79.1%	37	18.9%	4
Q5A Less Communicate Leader	131	66.8%	60	30.6%	5
Q6A Procedure Evaluation	176	89.8%	17	8.9%	3
Q7A Network with New Teacher	147	75.0%	45	23.0%	3
Q8A WorkLoad	163	83.2%	32	16.3%	1
Q9A Network with Colleague	152	77.6%	41	20.9%	3
Q10A Network with Parent	141	71.9%	51	26.0%	4
Q11A Social Activity	136	69.4%	58	29.6%	2
Q12A Responsible for Student	168	85.7%	26	13.3%	2
Q13A School under Inspection	141	71.9%	53	27.0%	2
Q14A Unclear Scope	101	51.5%	92	46.9%	3
Q15A No Equal Promotion	111	56.6%	84	42.9%	1

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 6  
Number, Mean, Median and SD for Sub-scale 2 (n=196)

Item number	N-size	Mean	Median	SD
Q2B Teaching Equipment	159	2.47	3.00	1.101
Q3B Psychological Training	133	2.46	3.00	1.063
Q4B Psychological Treatment	150	2.78	3.00	1.209
Q5B less Communicate Leader	129	2.51	2.00	1.160
Q6B Procedure Evaluation	171	3.09	4.00	1.260
Q7B Network with Teacher	143	2.37	3.00	1.220
Q8B WorkLoad	158	3.30	3.00	1.264
Q9B Network with Colleague	148	1.80	1.80	0.931
Q10B Network with Parent	139	2.56	2.56	1.217
Q11B Social Activity	133	2.68	2.68	1.139
Q12B Responsible for Student	164	3.50	3.50	1.042
Q13B School under Inspection	139	2.73	2.73	1.114
Q14B Unclear Scope	101	2.71	2.71	1.033
Q15B No Equal Promotion	110	2.82	2.82	1.060

Table 7  
Mean and SD for sub-scale 3 (Q16-Q40)

Factor	Computer Code	N-size	Mean	Median	SD
Resilience	Q16 Persevere	196	4.12	4.00	0.820
	Q17 Overcome	196	4.15	4.00	0.806
	Q18 LearnLesson	194	4.10	4.00	0.843
	Q19 Rebound Stronger	196	4.04	4.00	0.819
	Q20 Psychological Health	196	4.04	4.00	0.783
	Q21 Emotional Health	196	4.00	4.00	0.829
	Q22 Can Express Feelings	196	3.97	4.00	0.819
	Q23 LetAngerGo	196	3.79	4.00	0.901
Life and job satisfaction	Q24 Overcome Discourage	196	3.87	4.00	0.835
	Q25 Satisfied Life	196	3.64	4.00	1.000
	Q26 Satisfied Work	196	3.71	4.00	0.971
	Q27 Satisfied Leadership	196	3.68	4.00	0.988
Positive emotions	Q28 Autonomy In Position	196	3.35	4.00	1.115
	Q29 Stimulated Career	196	3.72	4.00	0.981
	Q30 InControl	196	3.87	4.00	0.879
	Q31 HopeInLife	196	3.96	4.00	0.911
	Q32 Support From School	196	3.55	4.00	1.068
	Q33 Relationship with Colleague	196	4.03	4.00	0.865
	Q34 Relationship with Student	196	4.07	4.00	0.817
	Q35 Disturb Memory	196	3.31	4.00	1.232
Negative emotions	Q36 FeelUnsafe	196	3.27	4.00	1.199
	Q37 NoInterest in Things	196	2.75	3.00	1.187
	Q38 FeelIrritable	196	2.99	4.00	1.172
	Q39 Pupil Lack Motivation	196	3.41	4.00	1.122
	Q40 Avoid to Think and Talk	196	3.17	4.00	1.171

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 8  
Hypothesis summary of Teachers' Professional Demands between primary and secondary schools

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of TMC is the same across categories of Schooltype	Independent samples Mann-Whitney U test	.215	Retain the null hypothesis.
2	The distribution of SMC is the same across categories of Schooltype	Independent samples Mann-Whitney U test	.000	Reject the null hypothesis.
3	The distribution of WL is the same across categories of Schooltype	Independent samples Mann-Whitney U test	.770	Retain the null hypothesis.

*Note.* Asymptotic significances are displayed. The significance level is .05

Table 9  
Post hoc analysis of the response regarding 'SMC'

School type	SMC	Statistic
Primary schools	Mean	2.41
	95% Confidence Interval for Mean	2.18 to 2.63
	Median	3.00
	Std. Deviation	1.180
	Std. Error	0.112
	Minimum	0
	Maximum	5
	Secondary schools	Mean
95% Confidence Interval for Mean		2.80 to 3.26
Median		3.00
Std. Deviation		1.073
Std. Error		0.116
Minimum		0
Maximum		5

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 10

Hypothesis summary of Teachers' Psychological Responses between primary and secondary schools

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Resilience is the same across categories of Schooltype	Independent samples Mann-Whitney U test	.135	Retain the null hypothesis.
2	The distribution of LJS is the same across categories of Schooltype	Independent samples Mann-Whitney U test	.001	Reject the null hypothesis.
3	The distribution of PEs is the same across categories of Schooltype	Independent samples Mann-Whitney U test	.093	Retain the null hypothesis.
4	The distribution of NEs is the same across categories of Schooltype	Independent samples Mann-Whitney U test	.174	Retain the null hypothesis.

*Note.* Asymptotic significances are displayed. The significance level is .05

Table 11

Post hoc analysis of the response regarding 'LJS'

	LJS	Statistic
Primary schools	Mean	3.81
	95% Confidence Interval for Mean	3.64 to 3.98
	Median	4.00
	Std. Deviation	0.900
	Std. Error	0.085
	Minimum	1
	Maximum	5
	Secondary schools	Mean
95% Confidence Interval for Mean		3.21 to 3.62
Median		4.00
Std. Deviation		0.952
Std. Error		0.103
Minimum		2
Maximum		5

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 12  
Comparison of the variables for each school (n=196)

Variables	Chi-Square	Asymp. Sig.
TMC	8.06	0.089
SMC	27.16	<0.001
WL	13.85	0.008
Resilience	7.10	0.131
LJS	15.49	0.004
PEs	9.68	0.046
NEs	6.81	0.146

### Post hoc Analysis

Table 13  
Comparing 'SMC' between PA and SB

School	SMC	Statistic
Primary school A	Mean	2.27
	95% Confidence Interval for Mean	1.96 to 2.57
	Median	2.5
	Std. Deviation	1.193
	Std. Error	0.152
	Minimum	1
	Maximum	5
	Secondary school B	Mean
95% Confidence Interval for Mean		3.02 to 3.55
Median		3.25
Std. Deviation		1.004
Std. Error		0.134
Minimum		1
Maximum		5

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 14  
Comparing 'WL' between PA and PC

School	WL	Statistic
Primary school A	Mean	2.25
	95% Confidence Interval for Mean	1.91 to 2.59
	Median	2
	Std. Deviation	1.348
	Std. Error	0.171
	Minimum	1
	Maximum	5
Primary school C	Mean	2.98
	95% Confidence Interval for Mean	2.61 to 3.35
	Median	3
	Std. Deviation	0.878
	Std. Error	0.179
	Minimum	1
	Maximum	5

Table 15  
Comparing 'LJS' between SB and PC

School	LJS	Statistic
Secondary school B	Mean	3.30
	95% Confidence Interval for Mean	3.05 to 3.56
	Median	3.5
	Std. Deviation	0.957
	Std. Error	0.128
	Minimum	2
	Maximum	5
Primary school C	Mean	3.96
	95% Confidence Interval for Mean	3.65 to 4.26
	Median	4
	Std. Deviation	0.721
	Std. Error	0.147
	Minimum	3
	Maximum	5

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 16  
Comparing 'PEs' between SB and PC

School	PEs	Statistic
Secondary school B	Mean	3.82
	95% Confidence Interval for Mean	3.65 to 3.99
	Median	4
	Std. Deviation	0.628
	Std. Error	0.084
	Minimum	2
	Maximum	5
Primary school C	Mean	4.25
	95% Confidence Interval for Mean	3.99 to 4.51
	Median	4
	Std. Deviation	0.608
	Std. Error	0.124
	Minimum	3
	Maximum	5

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 17  
Descriptive statistics of the response regarding 'LJS' from the five individual schools (n=196)

Variable	School	Description	Statistics	Std. Error.
LJS	Primary School A	Mean	3.80	.127
		95% Confidence Interval for Mean	3.54 to 4.05	
		Median	4.00	
		Std. Deviation	.998	
		Minimum	1	
		Maximum	5	
	Primary school B	Mean	3.70	.161
		95% Confidence Interval for Mean	3.37 to 4.03	
		Median	4.00	
		Std. Deviation	0.804	
		Minimum	2	
		Maximum	5	
	Secondary school A	Mean	3.62	.171
		95% Confidence Interval for Mean	3.27 to 3.97	
		Median	4.00	
		Std. Deviation	0.922	
		Minimum	2	
		Maximum	5	
	Secondary school B	Mean	3.30	.128
		95% Confidence Interval for Mean	3.05 to 3.56	
		Median	3.50	
		Std. Deviation	0.957	
		Minimum	2	
		Maximum	5	
Primary school C	Mean	3.96	.147	
	95% Confidence Interval for Mean	3.65 to 4.26		
	Median	4.00		
	Std. Deviation	0.721		
	Minimum	3		
	Maximum	5		

## SCHOOL TEACHERS' TRAUMATIC EXPERIENCE

Table 18  
Descriptive statistics of the response regarding 'PEs' from the five individual schools (n=196)

Variable	School	Description	Statistics	Std. Error.
PEs	Primary School A	Mean	3.84	.135
		95% Confidence Interval for Mean	3.57 to 4.11	
		Median	4.00	
		Std. Deviation	1.067	
		Minimum	1	
		Maximum	5	
	Primary school B	Mean	3.90	.108
		95% Confidence Interval for Mean	3.68 to 4.12	
		Median	4.00	
		Std. Deviation	.540	
		Minimum	3	
		Maximum	5	
	Secondary school A	Mean	4.07	.126
		95% Confidence Interval for Mean	3.81 to 4.33	
		Median	4.00	
		Std. Deviation	.678	
		Minimum	3	
		Maximum	5	
	Secondary school B	Mean	3.82	.084
		95% Confidence Interval for Mean	3.65 to 3.99	
		Median	4.00	
Std. Deviation		.628		
Minimum		2		
Maximum		5		
Primary school C	Mean	4.25	.124	
	95% Confidence Interval for Mean	3.99 to 4.51		
	Median	4.00		
	Std. Deviation	.608		
	Minimum	3		
	Maximum	5		