Chapter 4
Impact of Disasters in Higher Education:
Disruption and Facility Affectations

Jaime Santos-Reyes

https://orcid.org/0000-0002-3758-9862
SEPI-ESIME, ZAC, Instituto Politecnico Nacional, Mexico

Galdino Santos-Reyes
Universidad Tecnologica de la Mixteca, Mexico

Ricardo Tejeida-Padilla
Instituto Politécnico Nacional, Mexico

ABSTRACT

The chapter presents the results of the impact of the two 2017 earthquakes that occurred in Mexico City and the hurricane Otis that hit Acapulco, Guerrero, Mexico. Moreover, the perception of fear of buildings collapsing during the occurrence of the two earthquakes. The case study was centered on university students of the affected cities. The main conclusions were the following: a) Overall, there is a lack of studies or reports on the extent of the impacts caused by disasters in higher educational systems in Mexico. University students are affected by the interruption of their studies and this issue has not been addressed explicitly on how to deal with it. b) The disasters covered in the chapter suggest that university students (and lecturers) exhibited prosocial behavior not only those in the affected areas but also students nationwide. c) Disasters trigger disruption to critical infrastructures such as the water supply systems, energy sector, transportation, communications systems, and d) university students exhibited fear of building collapsing during the 2017 earthquakes.

INTRODUCTION

The 2030 agenda for sustainable development is a plan of action for people, our planet and prosperity (UN-SDGs, 2023). The agenda and the 17 Sustainable Development Goals (SDGs) aim at achieving that aim. The agenda recognizes and reaffirms the urgent need to reduce the risk of disasters. The goals that implicitly or explicitly relate to higher education are the following (UN-SDGs, 2023):

Goal 1: No poverty. Target 1.5, "By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters."

Goal 2: No hunger. Target 2.5, "By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality."

Goal 3: Good health and well-being. Target 3.D, "Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks."

Goal 4: Quality of Education. Target 4.3, "By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university."

Goal 6: Clean water and sanitation. Target 6.1, "By 2030, achieve universal and equitable access to safe and affordable drinking water for all."

Goal 9: Industry, innovation, and infrastructure: Target 9.1, "Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all."

Goal 11: Sustainable cities and communities: Target 11.5, "By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations."

Goal 13: Climate action. Target 13.3 "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning."

The two goals that addressed explicitly the importance of disaster risk reduction in education systems are goals 4 and 13. In line with these goals, several studies have been reported in the literature regarding how universities can contribute, for example, to an Effective Disaster Risk Reduction Education (DRRE) (Chen & Adefila, 2020), and to promote education to disaster risk reduction in general (Seddinghi et al., 2021; Shaw, 2014; Kagawa & Selby, 2014; Adiyoso & Kanegae, 2012; Dufty, 2014; Gokmenoglu et al., 2021, 2023), and voluntarism following disasters (Kawawaki et al., 2023; Rao et al., 2011; Carlton & Mills, 2017; Paciarotti et al., 2018; Wittaker et al., 2015; Rios, 2018; Santos-Reyes & Gouzeva, 2020; Demirbilek & Ozturk, 2023), among others.

However, there are not that many studies addressing explicitly how disasters affect higher education students. It may be argued that students at all levels, are vulnerable to disasters triggered by natural hazards (e.g., earthquakes, hurricanes, among others). Kousky (2016) argued that there are at least three ways children can be affected by disasters: {1} being killed or injured, malnutrition or illness by the lack of food due to the interruption of food supply; {2} psychological effects during and after the emergency disaster (e.g., fear of the building collapsing, among others); and {3} disasters may interrupt students' education when school facilities are destroyed or damaged, or when families are displaced in the aftermath of disasters.

More recently, a study found that disasters affect students' attendance patterns and absenteeism rates, and ultimately dropping out of school. Some of the reasons on why such consequences are given by the study (Hebebci, 2023): economic problems, displaced and sheltered, migration, psychosocial effects,

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