Mobile Learning Technologies as a Means of Maintaining Education Delivery in Crisis Situations

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ABSTRACT

The disruption of education services during major crises poses a challenge for international agencies, governments, schools, and communities. The article demonstrates a potential role for mobile technologies in supporting continuity of education delivery during temporary school closures caused by such crises. Discussing how school administrators can reduce the impact on students, this article describes an interactive online educational environment and outlines the advantages of available mobile learning devices for this purpose. With proper training, teachers can integrate mobile learning tools in both classroom activities and out-of-classroom learning. The article will be of interest to educational policy makers and school administrators with responsibility for ensuring continued education delivery in the aftermath of major crises.

KEYWORDS

Educational Disruption, Emergency Education, Mobile Learning Technologies, School Closure

1. INTRODUCTION

Education disruption has been documented during major crises such as sectarian violence, natural disasters, and epidemics. In the first half of 2017, floods and typhoons forced 4.5 million people around the world to leave their homes, causing significant disruption of education processes; the 2017 South Asia floods alone destroyed or damaged 18,000 schools, affecting 1.8 million children (Save the Children, 2017). Armed conflicts can also paralyze education services where schools and teachers are attacked and students are displaced or relocated. Exacerbated by limited supplies and resources and challenging geographic contexts, the extensive damage triggered by such crises may result in long delays before education delivery can restart in temporary learning centers. Consequently, children lose long months of schooling, and many may lose interest in education, drop out of school, and fail to return to the learning environment (Anderson, 2006). The longer children are out of school, the less likely they are to return; for example, after Typhoon Washi in the Philippines in 2011, 23 percent of families said their children had permanently dropped out of school within one year (Save the Children, 2014). Education disruption also leaves children at risk of child labor, early marriage, exploitation, or recruitment into armed forces. During natural disasters, education often receives less funding than other sectors because it is not viewed as a lifesaving activity in the same way as shelter, food, and water. In recent years, however, various humanitarian organizations have advocated recognition of education as a life necessity.

Technology has greatly enhanced access to education, facilitating learning among many disadvantaged populations, including those affected by crises. The availability and accessibility of

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mobile devices means that a larger population of students can now be reached, and education delivery can be maintained online. We argue here that mobile learning technologies offer an alternative approach to the challenge of education delivery disruption, especially for children in regions affected by conflict or disaster.

2. MAINTAINING DELIVERY OF EDUCATION SERVICES DURING CRISSES

Armed conflict and sectarian violence can severely disrupt delivery of formal education services, with long-term impacts on children’s attainment and on enrollment and retention in schools (Justino, 2016; Valente, 2011). Children’s educational attainment is particularly compromised by exposure to violence; according to Lai and Thye (2007), armed conflicts reduce educational enrollment across all levels. In regions affected by violent conflict, the threat of kidnapping is a significant impediment to student enrollment and teacher retention and can lead to school dysfunction during active periods of fighting, with sporadic school closures. Additionally, schools may be damaged or temporarily be occupied by displaced people, or they may be used by military or other armed groups (Standing & Parker, 2011). As well as the impact on student safety and educational attainment, school closures and disruption of education delivery mechanisms impact severely on psychological development, including identity development. Students who are at risk of being injured or killed or who are forcefully displaced from their homes and communities and separated from their parents and families may suffer trauma or join militant groups.

It can also be challenging to maintain delivery of education services in the event of natural disasters such as earthquakes, hurricanes, or floods. The seismic vulnerability of school buildings and the absence or inadequacy of risk mitigation measures can have devastating consequences for schools, students, and educational delivery (Baytiyeh & Naja, 2013; Naja & Baytiyeh, 2014). School closures and disruption of education processes have traditionally been among the most severe consequences of natural disasters, particularly in flood-prone and seismically vulnerable regions, depriving millions of children of their fundamental right to education and threatening their future welfare, both physically and psychologically. Hurricanes Harvey and Irma, which hit the United States in 2017, provided clear evidence of the impacts of natural disasters in this regard, causing temporary school closures that prevented 1.7 million children from attending school for several weeks. Similarly, in Bangladesh in 2013, Tropical Storm Mahasen destroyed 171 schools and left more than 1,000 damaged, impacting more than 300,000 students (Save the Children, 2014). Following the floods in Pakistan in 2010, 1,800 schools had been damaged and many more were occupied by people fleeing the floods (Hartill, 2011). In the same year, Typhoon Haiyan damaged 3,000 schools in the Philippines, affecting about a million children (Save the Children, 2014).

The closure of schools during pandemics has also attracted increasing attention at the level of government policy; the severe threat of infectious disease means that school closure is often a necessary preemptive measure to mitigate the risk of contagion, as reported in relation to a number of major outbreaks (e.g., severe acute respiratory syndrome 2003; swine influenza 2009; Ebola 2013–2016; Zika 2015). During the Ebola outbreak, five million children in Africa were affected by school closures (Sifferlin, 2014); schools in Sierra Leone were closed for nine months and schools in Guinea and Liberia for six (Paye-Layleh & Dilorenzo, 2014). As a consequence of such extended closures, students tend to drop out of school and so attain a lower level of education.

3. FACING THE CHALLENGES

Given the high risks of maintaining traditional delivery of formal education during major crises, mobile learning technologies and applications offer a means of preventing interruption. The growing rate of Internet and mobile phone use has been documented across the globe. Worldwide, more than 3.5 billion people now use the Internet, representing a penetration rate of 51.7 percent (Internet
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