# Chapter 102

# Toward Web 2.0 Integration in Indonesian Education:
## Challenges and Planning Strategies

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## ABSTRACT

*Numerous efforts have been made to reform education to address globalization both in developed and developing countries. The integration of technology in education has been one vital reform effort in developing countries to prepare graduates for 21st century workplaces, which are digitally robust. Web 2.0 technologies are becoming prominent educational and workplace tools. This literature review of Indonesian government policies, NGO initiative reports, and contemporary research explores the integration of Web 2.0 in Indonesian education using an ecological perspective by introducing the Indonesian national educational policy and laws, describing national and non-government organizations' initiatives focused on Web 2.0 integration, identifying salient national and local challenges preventing Web 2.0 integration, and proposing strategies for future planning and research. Challenges identified include lack of technological facilities, an absence of technology standards in education, a standardized testing culture, lack of coordination between government levels (national to local), lack of professional development, and a need for strong school technology leadership. The authors recommend Indonesia engage in comprehensive, visionary planning for Web 2.0 integration with strategies to meet local needs, invest in professional development and technology specialist positions, and advance mobile Web 2.0 computing and BYOT/D initiatives. Future research could examine how ecological factors at the national, provincial, and local levels coordinate to best establish Web 2.0 integration in education at the school level.*

## INTRODUCTION

In recent years, the integration of digital technology, especially Internet-based technologies, into education has become very important for both developed and developing countries. The earliest form of the Web, Web 1.0, was built through the use of Hypertext Markup Language (HTML) that coded Web pages for transmitting information from experts to the masses, who read or consumed the information. Web 2.0 technologies have been described as the next generation Web, one that organizes itself semantically through user and data connections with tags and linking. Web 2.0 re-characterizes the Internet as a participatory, collaborative, and distributed network of information, content creators, consumers, and organizing features. All users, who now form the center of the Web, materially participate in the generation of content. Such content can be expressed as original, remixes, or commentary and connections. Users also represent their identity(ies) through public or private profiles in the many formal and informal social spaces. Inter-technology data sharing enables distributed practices and collective intelligence to emerge as prominent (Anderson, 2007; Greenhow, Robelia, & Hughes, 2009; O'Reilly, 2005). Web 2.0 includes social media such as Facebook, Google+, Foursquare, and MySpace; bookmarking such as Diigo, Technocrati, Pinterest, and Digg; and other tools such as tagging tools and remixing tools. With the rapid development and dissemination of Web 2.0 tools, developing countries have considered incorporating Web 2.0 tools, such as Web blog, social media, and wiki, in education. Although there are many obstacles preventing integration of Web 2.0 such as lack of computers and Internet in schools, many developing countries still strive to integrate Web 2.0 tools in many ways with the support from governmental agencies and Non-Governmental Organizations (NGO).

Greenhow, Robelia, and Hughes (2009) state that Web 2.0 holds great promises and challenges for education. Thus, scholarship about Web 2.0 in developing countries is a worthwhile research topic because there will be different patterns in Web 2.0 integration in education between developed and developing countries. Research exploring the potential and challenges of Web 2.0 integration in developing countries is a pressing need. To date, there is a gap of research about Web 2.0 integration in education in developing countries. Current research focuses on policy preparation, such as the importance of careful planning in integrating technology in developing countries (Jhurree, 2005), which offers guidelines for technology integration for developing countries. Developing countries might need to embrace leapfrogging (Harkins, 2008) in order to implement Web 2.0 integration successfully. Leapfrogging is the strategy of jumping to the best innovation adoption condition by which time and costs are saved.

In developing countries like Indonesia, an adoption of technology in education can leverage large improvements in human development through education. Kim, Miranda, and Olaciregui (2008) describe possibilities of incorporating mobile technology to combat illiteracy in underserved area in Latin America. Kim et al. came to the conclusion that mobile devices can provide rich learning material for people in underserved area due to its low cost, portability, and versatile features. In addition, Perraton and Charlotte (2001) assert that the incorporation of new technologies such as Web 2.0 in education can bridge the gap between information rich countries and information poor countries such as the case of Finlandia in using Web (ENO—Environment Online) to raise environmental awareness among students in Finland schools and other schools around the World.

## THEORETICAL FRAMEWORK

This chapter depicts Web 2.0 integration in primary and secondary education in the developing country, Indonesia, through a literature review of

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