

# Chapter 1

## Universal Design for Learning (UDL) Guidelines for Mobile Devices and Technology Integration in Teacher Education

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### **ABSTRACT**

*Universal Design for Learning (UDL) guidelines provide recommendations for flexible technology integration in teacher education. With the advent of mobile devices, such as smartphones and tablets, how do educators in teacher education programs (teacher education faculty, preservice teachers, public school teachers) use mobile devices within a flexible curriculum that addresses the learning of diverse students? Section one of this chapter describes the legal and administrative context for accessibility, the UDL conceptual framework, technology integration in teacher education, the TPACK model for technology integration, and the use of mobile devices in teacher education. Section two provides recommendations for applying UDL principles to mobile devices in public schools.*

### **BACKGROUND**

Intervention specialists and general education teachers in public schools face the challenge of meeting the needs of all students. Rather than taking a homogenous view of classrooms and curriculum, educators now realize that a heterogeneous group of students require new approaches (Rose & Meyer, 2002). The Higher Education Opportunity Act of 2008 addressed diverse learners in public schools with legislation advocating curriculum that is not fixed but rather curriculum that needs to be flexible and

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responsive to individuals. Universal Design for Learning (UDL) was identified in the 2008 legislation as a framework for guiding educational practice that is flexible and responsive to both individuals and school standards (Partnership for 21<sup>st</sup> Century Skills, 2003). Technology use in public schools provided curriculum alternatives that moved beyond print materials to assistive technologies (AT), which addressed individual physical and learning needs. Today, mobile devices, such as smartphones and tablets, provide active learning in regular education and special education classrooms. Digital media, a feature of mobile devices, displays content in numerous formats (text, still images, sound, video) and can be combined and networked (Hall, Myer, & Rose, 2012).

This chapter advocates the need to design curriculum and learning, which is accessible and responsive to individual students as opposed to homogenous views of students in the classroom. The principles of UDL, along with a framework of Technological Pedagogical Content Knowledge (TPCK), provide a joint conceptual approach for integrating technology, including mobile devices, in teacher education programs. Educators within those programs include teacher education faculty, preservice teachers, public school teachers, and intervention specialists. All of these professionals face the reality of mobile devices as a new set of technology integration decisions, supplementing current teaching practice and initiatives (e.g. 1:1 computer use). Teacher education settings for the use of mobile devices include program courses or seminars, and practicum experiences in public school, including teaching with these devices and professional development on their use. UDL applied to mobile device integration gives preservice teachers, who will come to teach in public schools, practice at making teaching decisions on how to tap the affordances or enabling features of mobile devices to address diverse student needs. Meanwhile, the TPCK framework prompts educators in teacher education programs to develop a comprehensive technology integration plan, one that involves all constituents in curriculum decisions. The preservice teacher will likely co-mentor the experienced teacher on the use of this new generation of learning tools. Because mobile devices will become a major addition to schools, teacher educators will need to model their use and address the value of mobile learning in teacher education programs.

## **LEGAL AND ADMINISTRATIVE CONTEXT FOR ACCESSIBILITY**

Any instructional innovation requires careful consideration of the context for its use, a set of realities, which drive the lives of teachers and consequently influence student performance and developmental growth. A summary of major legislation for accessibility, best practices for web accessibility standards, and the institutional review of courses and curriculum, addresses the legal side of accessibility for mobile devices.

The major relevant legislation includes the Americans with Disabilities Act (ADA) of 1990 and Sections 504 (rights to persons with disabilities) and 508 (eliminate barriers in technology and ensure accessibility by Federal agencies) of the Rehabilitation Act Amendments of 1973 (and as amended in 1992 and 1998). Both pieces of legislation protect individuals with disabilities from discrimination. Technical standards of Section 508 of the Rehabilitation Act cover accessibility of software, web-based information, and technology applications such as audio and video. Section 508 addresses legal compliance of Federal agencies and units doing business with the Federal government. Section 508 also includes technical standards against which products can be tested to determine if they meet technical compliance.

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