Differentiating through Technology for Gifted Students

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EXECUTIVE SUMMARY

Challenging gifted students in regular classroom settings can be effectively accomplished through the use of innovative technology. This chapter explores the case of pre-service teachers addressing the needs of gifted students by differentiating curriculum using sophisticated technologies. Also considered are the technological tools that go beyond simple reporting and move toward authentic real-life experiences. Further, in review, the case specifically addresses attributes of the gifted learner along with the skill of the classroom teacher to promote differentiation through technology. Finally, recommendations for practice are discussed along with the need for teacher preparation programs to prepare teachers more effectively to use technology in complex and challenging ways for gifted students.

CASE BACKGROUND

There is no doubt that many gifted students have access either at home or through school to instructional technologies. However, as evidenced in school-based practice often the focus of the use of instructional technologies in gifted child education is on research or as aptly described by Siegle (2004) the Phase II stage of technol-

ogy development in the schools where students use technology to "collect data; analyze and organize it and create multimedia presentations that demonstrated their understanding"(p 33). A review of state and local guidelines on technology competencies for students (not just gifted students) primarily focus on collaboration and communication, creativity and innovation, and critical thinking skills. It is no longer enough for students to master technology skills. They now need to be able to use technology to analyze, explore, and learn

A number of scholars in the field of gifted child education (Siegle, 2013; Renzulli & Reis, 2007; Shaunessy & Page, 2006) have called for more sophisticated use of instructional technologies in gifted education classrooms. Focusing on critical thinking skills in geography, Shaunessy and Page (2006) make a clear case for the use of GPS and GIS devices to enhance social studies education in a gifted middle school classroom. Students in this program developed a community atlas of significant places in the community's development, focused on developing a holistic understanding of both the cultural and physical attributes of their community through the use of GPS and GIS. Further, they report increased academic gains including their inquiry and critical thinking skills (p 50). Siegle (2013) shares his insights into using *iPads* with young gifted and talented students to give them opportunities now that the touch and swipe gestures are very easy for young children to master as opposed to the older keyboard or mouse approaches. Further, he notes the wide variety of uses for teaching and learning including but not limited to: general production of information (which in some cases a young gifted child could not produce in written form); creating graphics, text, line drawings and voice recordings; video recordings and an ability to edit; electronic books both intact and created by the child; dictation capability to further assist with writing and spelling; and multiple content domains such as astronomy, geography, and the arts can all be available for the young gifted child. Not only does Siegle note the types of technology available he also describes the reasoning behind using technology with gifted students, "many gifted and talented students enjoy learning through exploration and experimentation…Technology allows the freedom to investigate various paths to multiple solutions…technology transforms students from receptacles of knowledge to active producers who direct their own learning" (2013).

Today's technologies allow students to not only access knowledge, but also to create it. These technologies enable students to participate in a culture of learning that can expand their understanding of the world around them. By drawing on students' interests and learning styles, teachers can create engaging and challenging lessons. Having worked with technology and differentiation for some ten years, the authors will use authentic examples to demonstrate how to go beyond traditional uses of technology with gifted students. This case study will explore some of these

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