Using Technology to Teach Gifted Students in a Heterogeneous Classroom

Edward L. Shaw Jr.
University of South Alabama, USA

Rebecca M. Giles
University of South Alabama, USA

EXECUTIVE SUMMARY

The answer to educating gifted and talented students in heterogeneous classrooms may lie, at least partially, in using instructional technology to motivate learning and enrich lessons. This case study explores one aspect of effective instruction for gifted second graders during lessons conducted in their general education classrooms. This chapter summarizes the development and delivery, students' performance and perceptions, and professional implications of an elementary science lesson utilizing interactive whiteboard technology to convey science content and elicit participation. It also emphasizes the importance of teacher educators' modeling the use of interactive whiteboards for the purpose of differentiating instruction in teacher training programs to better prepare future teachers for the diverse learners who will fill their classrooms.

ORGANIZATION BACKGROUND

Substantial reports over the past 15 years indicate that large numbers of teachers choose to leave the profession early in their careers (Darling-Hammond & Sykes, 2003; Hare & Heap, 2001; Johnson, 2001; Pipho, 1998). According to 2004-2005 data collected by the National Center for Education Statistics, nearly a quarter of public-school teachers leave the profession within the first three years (Boyd, Grossman, Lankford, Loeb, Wyckoff, & National Bureau of Economic Research, 2008; Marvel, 2007), and nearly half of all teachers leave the profession after five years of teaching (Ingersoll, 2007; Alliance for Excellent Education, 2005; National Commission on Teaching and America's Future, 2003). The percentages of attrition are greatest for teachers in math, science, and elementary special education (Ingersoll, 2007). Though there may be many reasons for teacher attrition, the short-comings of a traditional teacher preparation program have been cited as at least partly contributing to the continuous teacher turnover currently plaguing the profession (Haberman, 2005; Kent, Feldman, & Hayes, 2009).

Preservice teachers must experience a wide range of learning opportunities during their preparation program to avoid feeling underprepared when they begin teaching (Kuster, Bain, Milbrandt & Newton, 2010). Advocating a one-size-fits-all approach to teaching does not work (Stotsky, 2006) because a classroom full of "regular" students simply does not exist. The disparity between the abilities of students in a single classroom is greater than ever before, thus, today's elementary teachers must be able to deliver lessons that accommodate students' varied learning styles and wide range of abilities when they are heterogeneously grouped for instruction. The future success of educating students who have an array of learning skills, academic abilities, physical challenges, and cultural variations is contingent upon how well prepared educators are in the pedagogies of differentiating instruction (Kent & Giles, in press).

Preservice teachers must be well prepared to teach in an innovative manner, utilizing principles and practices for differentiating instruction advocated in quality teacher-preparation programs. Further, novice teachers must be prepared to sustain this kind of teaching when faced with the obstacles of an overwhelmingly diverse student population (Lloyd, & Sullivan, 2012). The situation becomes even more challenging when considered in light of ever changing federal, state, and local regulations and expectations for student performance, particularly in regard to the recent adoption of Common Core State Standards and an increased investment in science, technology, engineering, and mathematics (STEM) education. Unfortunately, the needs of high-achieving and academically advanced students may become overlooked by elementary educators in the mist of such demanding circumstances.

Related Content

Data Mining with Incomplete Data
Hai Wangand Shouhong Wang (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 526-530).*
www.irma-international.org/chapter/data-mining-incomplete-data/10870

Architecture for Symbolic Object Warehouse
Sandra Elizabeth González Císaro (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 58-65).*
www.irma-international.org/chapter/architecture-symbolic-object-warehouse/10798

Spatio-Temporal Data Mining for Air Pollution Problems
Seoung Bum Kim, Chivalai Temiyasathit, Sun-Kyoung Parkand Victoria C.P. Chen (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1815-1822).*
www.irma-international.org/chapter/spatio-temporal-data-mining-air/11065

Interest Pixel Mining
Qi Li, Jieping Yeand Chandra Kambhamettu (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1091-1096).*
www.irma-international.org/chapter/interest-pixel-mining/10957

Incremental Mining from News Streams
Seokkyung Chung (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1013-1018).*
www.irma-international.org/chapter/incremental-mining-news-streams/10945