

Chapter 3

Integration of Educational Software in Teaching Gifted Students in K–12 Classrooms

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ABSTRACT

Technology is greatly integrated into K-12 classrooms in teaching gifted students. The use of software surrounds us in our everyday life. Educational software provides students a unique and personalized learning experience. Many teachers use the software in delivering content knowledge in the field of math, science, social studies, reading, and language arts. Enhancing critical and creative thinking skills in students and preparing gifted students' talent is an important goal of teachers in the 21st century. Educational software technology can enhance these skills by creating optimal learning environments. It plays an important role in learning and teaching in K-12 classrooms and brings positive improvement in students' achievement. Educational software improves self-directed learning and problem-solving skills in students. Educational software also improves communication between teachers, students, and parents. This book chapter seeks to provide a broad overview of available educational software in teaching gifted students in K-12 classrooms.

INTRODUCTION

The term “Educational software” refers to any and all software designed for use in the education industry encompassing a wide range of computer software (Haag, Cummings, & Dawkins, 1998; Squires & McDougall, 1994). It is broadly classified into student information systems, classroom management software, reference management software, and language learning software. The purpose of developing and designing educational software is to enhance the efficiency and efficacy of the education system.

DOI: 10.4018/978-1-7998-1400-9.ch003

Schools across the nation are embracing educational software as the digital transformation and are changing the ways of teaching and learning in the 21st century. Educational software is proven instrumental in providing digital content that can be created, edited, distributed, shared, and reused by teachers and students. Artificial intelligence has the potential to design digital content that can adapt to students' knowledge levels. Therefore, gifted students can receive differentiated instruction that matches their ability. Educational software has built-in assessments that teachers can use to assess and track the progress of students. Educational software assists the teacher to revisit the content if students struggle with a topic, as assessments provide immediate feedback. Educational software apps are not only beneficial to gifted students in their learning, but these are also an important tool to improve parent-teacher communication.

Parent involvement in the education of their children is critical for the learning process. Educational software and apps promote clear and effective communication between teacher, student, and parent. Parents can get immediate feedback on their children's performance by joining the app that is used by the teacher. Parents receive a simultaneous notification when the teacher or students upload assignments and activities on the app. An extensive amount of research literature establishes the positive correlation between parent involvement in their children's school and academic achievement. Parent involvement with school improves parent-teacher relationships, school climate, classroom attendance, and test scores.

Many educational software programs are designed to help administrators and teachers in creating content, sharing lessons, data analysis, and managing classrooms. Educational software programs provide a wide range of applications and functions that enable teachers to create the best learning environment for gifted students in K-12 classrooms. Teachers can use the learning management system and classroom management apps to manage behavior and time on task. Educational software programs have grown in popularity due to a wide selection of educational applications that are proven beneficial to students, teachers, and parents.

Gifted and talented students have outstanding abilities. They have a remarkably high-level of aptitudes and/or competence in one or more domains (mathematics, music, language, painting, dance, sports, etc.) and show a high-level of performance when compared to others of the same age, experience, or environment. Gifted students need an individualized curriculum which is differentiated and based on their advanced language and reasoning skills, creativity, and rapid learning skills to solve complex and novel problems (Callahan, Moon, & Oh, 2017). These students are often underserved in K-12 classrooms due to the lack of appropriate resources, challenging environment, and enriched curriculum.

Educational software is integrated into 21st-century classrooms and is an essential part of students' lives. Today, students use all kinds of educational software on their desktop, laptops, hand-held phones, and iPads. Educational software technology is efficiently and effectively integrated by some of the K-12 classroom teachers to achieve students' learning. It enables teachers to individualize and differentiate lessons for their gifted and talented students (Thomson, 2010). It not only supports students but also aids in reducing teachers' stress and workload. As educational software programs are readily available at different developmental levels, it allows students to work and practice with the content at their own pace. Educational software provides teachers a sense of responsibility for students' learning and motivates them to work harder.

Educational software programs are evolving and changing continuously and should match the need of gifted and talented students, so they become innovators, thinkers, and creative problem solvers. Most educational software is programmed to reason, question, and provide expert guidance, which is used as an important tool for individualizing instructions for gifted students. Students who are gifted and talented need consistent practice to progress at their independent level of performance. Gifted students who are

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