South Carolina K-12 Online Schools: A Framework for Measuring Success in Teaching and Learning

Carmen M. Stone

United States K-12 online schools are growing rapidly, but research has not kept pace with this growth. The purpose of this quantitative, correlational study was to measure if there was a correlation between teachers’ perceptions of the Effective Schools Model and student achievement within two South Carolina online high schools. A quantitative methodology was used to measure if a relationship existed between six effective schools correlates and the academic performance of ninth through 12th grade online South Carolina students. The Effective Schools Model provided the theoretical basis for this study because of the documented effectiveness of this model within traditional brick and mortar schools. Quantitative correlational methodology answered the research question: Is there a relationship between the correlates of effective schools research and student achievement in K-12 online schools located in South Carolina? The Effective Schools Survey was used to collect data by measuring South Carolina online high school teachers’ perceptions of the presence of the effective schools correlates. Archival standardized test data of grades nine through 12 online students were collected from the South Carolina Department of Education to measure academic performance. Findings revealed few statistically significant relationships between the Effective Schools Model and student achievement. However, these finding contributed to the limited research available pertaining to K-12 online schools. The findings of this study may interest educational leaders as they seek to identify specific factors or create models to effectively assess teaching and learning within online education.
INTRODUCTION

Christensen, Horn, and Johnson (2008) referred to online schools as a disruptive innovation that will change the way students learn. Watson, Murin, Vashaw, Gemin, and Rapp (2011) noted over 536,000 course enrollments for online schools in the United States for the 2010-2011 school year, with a 19% increase from the 2009-2010 school year. The U.S. Department of Education (2010a) asserted that the number of K-12 online schools is likely to continue to increase along with the number of students enrolled. However, research pertaining to online schools is limited, especially in the area of K-12 online learning (Barbour, 2011; Barbour & Reeves, 2009; Cavanaugh, Barbour, & Clark, 2009; DiPietro, Ferdig, Black, & Preston, 2010; Rice, 2006). The U.S. Department of Education (2010b) conducted a systematic search of research literature and found only five experimental or controlled quasi-experimental studies comparing the learning effects of online to face-to-face instruction for K-12 students, and these results were based on studies pertaining to other settings, such as the medical field and higher education institutions. The U.S. Department of Education concluded, “few rigorous research studies of the effectiveness of online learning for K–12 students have been published” (p. 1).

West Ed. (2008) added that the scant research literature pertaining to K–12 online learning evaluation has provided few frameworks to help evaluate and analyze online programs, or instruments to collect data or assess program quality. Barbour and Reeves (2009) agreed more research is needed to determine the specific variables that contribute to student success before a model to effectively assess K-12 online instruction can be implemented. Limited frameworks are available to assess online programs, making it difficult to measure success in teaching and learning (Black, Ferdig, & DiPietro, 2008; Rice, 2009; Roblyer, Davis, Mills, Marshall, & Pape, 2008; Tallent-Runnels, Thomas, Lan, Cooper, Ahern, & Shaw, 2006; West Ed., 2008). This gap in the literature demonstrates the importance of examining specific factors in online education that contribute to success in teaching and learning in order for educational leaders to develop a framework or model that effectively assesses online education and measures success in teaching and learning.

However, Watson and Gemin (2008) concluded there is currently no agreement among K-12 online schools about what to measure and how to measure it. Lack of a common assessment framework for all K-12 online schools to use and the limited models currently available to assess online education pose a problem because it is difficult for educational leaders to determine how successful online schools are in helping all students learn. All students enrolled in public K-12 schools could potentially be affected by this problem, as more and more schools begin to use online education to better meet the needs of a diverse student population and to teach 21st century skills such as technology literacy. Picciano and Seaman (2007) found that the majority of U.S. school districts are providing some form of online learning for students and many more plan to do so within the next three years. By 2016, the number of students enrolled in online schools or in online courses within traditional brick and mortar schools is anticipated to reach five to six million, with a steady increase over time. Picciano and Seaman (2007) concluded that issues pertaining to online K-12 education need to be researched in more depth in order to inform policymakers in federal, state, and local governing agencies who may consider using this technology to improve instruction.

EFFECTIVE SCHOOLS MODEL

Lezotte and McKee (2002) found that the Effective Schools Model is a framework that can be used to measure success in teaching and learning within traditional brick and mortar schools and help close the achievement gap by ensuring all students are provided a quality and equitable education. Lezotte and Snyder (2011) noted that the core belief of a “learning for all” mission that is at the heart of the Effective Schools Model aligns with Thomas Jefferson’s vision of a quality education...
being accessible to all Americans regardless of race or socioeconomic status. The “learning for all” mission that underpins the Effective Schools Model is especially useful for online schools that are now enrolling larger numbers of minority students and students with special needs (U.S. Department of Education, 2010a). To accomplish the “learning for all” mission, the Effective Schools Model includes seven correlates or guiding principles: instructional leadership, clear and focused mission, safe and orderly environment, climate of high expectations, frequent monitoring of student progress, opportunity to learn and student time on task, and positive home-school relations (Lezotte & McKee, 2002).

The safe and orderly environment correlate ensures that the school atmosphere is free of physical threat and that the school climate is conducive to learning. The climate of high expectations for success correlate ensures that all school staff create a climate of high expectations for students so that all students are successful at learning. The clear and focused mission correlate ensures that everyone shares the “learning for all” mission: staff, parents, and students. The instructional leadership correlate suggests that the principal serves as an instructional leader who effectively and constantly communicates the school’s mission to staff, students, and parents, while facilitating a collaborative environment where everyone works together to achieve the “learning for all” mission. The opportunity to learn and student time on task correlate is designed to ensure that all students are given ample opportunities to learn as well as time needed to master course content. This correlate acknowledges that some students need more time or a different approach to master course content. Teachers may use whole group, small group, or one-on-one approaches to achieve a “learning for all” mission. The frequent monitoring of student progress correlate ensures that student academic progress is measured frequently with the use of a variety of assessment methods. Results are then used to make improvements in individual student performance and teacher instruction. For the home-school relations correlate, parents, teachers, and school staff work together to help students learn and achieve at the highest level possible.

Effective Schools Model Use Within Online Schools

While the Effective Schools Model has proven successful in traditional brick and mortar schools (Lezotte & Snyder, 2011), little to no research has been conducted within K-12 online schools. Therefore, this quantitative research study examined specific factors that contribute to successful teaching and learning in two South Carolina online high schools to determine if a relationship or correlation existed between the Effective Schools Model (Lezotte & McKee, 2002) and student achievement. This study extended the prior research available pertaining to the Effective Schools Model and added to the limited research available regarding K-12 online education.

METHODOLOGY

The guiding research question for this study was: Is there a relationship between the Effective Schools Model and student achievement in K-12 online schools located in South Carolina? The Effective Schools Model consists of seven effective schools correlates. This study examined if there was a positive correlation between six of the effective schools correlates (instructional leadership; safe and orderly environment; climate of high expectations; frequent monitoring of student progress; opportunity to learn and student time on task; and positive home-school relations) and each of the nine standardized test scores. The Effective Schools Survey was not designed to include separate questions to measure the seventh correlate (clear and focused mission). However, this correlate was included within the other six correlates measured with this survey instrument. A self-administered web-based Effective Schools Survey measured South Carolina online 9-12th grade teachers’ perceptions of the presence of six correlates of effective schools, included within the Effective Schools Model. Two online schools participated in this study for a total of 46 online 9-12th grade teachers. The Effective Schools Model includes specific school and home factors that demonstrate a positive impact on student success. Student success for this study was measured by performance or achievement on nine different standardized tests. Student standardized test scores consisted of High School Assessment Program (HSAP) scores in English and Math and end-of-course tests for Algebra 1, Math for the Technologies, English 1, Biology 1, Chemistry, Physical Science, and United States History and the Constitution. These standardized test scores were collected to measure if there was a correlation between
teachers’ perceptions of the presence of the correlates of effective schools and student achievement.

Student test scores have traditionally been used in schools to assess student learning and measure academic performance (Callender, 2007; Dickson, 2005; Doran, 2004; Ronsisvalle & Watkins, 2005). The No Child Left Behind (NCLB) legislation has added to the schools’ need to designate specifically how academic performance will be measured. NCLB legislation requires every state to define and monitor adequate yearly progress (AYP) for every school. United States schools use student test scores as a factor in measuring AYP, although individual schools and districts determine state by state the types of standardized tests used to measure student performance (U.S. Department of Education, 2001). This variation in student testing, especially for online schools, demonstrates the complexity in effectively assessing teaching and learning.

RESULTS

For this study, few statistically significant correlations were found. For research question one, School A had one statistically significant relationship \((r = -0.412, p = 0.017)\) between English HSAP scores and the instructional leadership correlate. The findings for research question one support one of the nine hypotheses outlined in this study. Hypothesis \(H_{1c}\) was supported for School A for survey question number 24 [School administrators work with teachers, students, and parents to develop the school’s improvement plan.] \((r = 0.686**, p = 0.010)\). These findings correspond with that of earlier research (Chastain, 2005; Husbands, 2005; Maciel, 2005) that suggested effective instructional leaders help to increase student achievement. In addition, Marzano (2003) stated that strong instructional leadership is the overarching correlate that affects the effective implementation of all other effective schools correlates.

The second research question examined the relationship between the correlate of a safe and orderly environment and student achievement. Results indicated School A had one statistically significant relationship \((r = 0.358*, p = 0.041)\) between Biology 1 End-of-Course scores and the safe and orderly environment correlate and School B had one statistically significant relationship \((r = -0.582*, p = 0.047)\) between Physical Science End-of-Course scores and the safe and orderly environment correlate. The findings for research question two supports one of the nine hypotheses outlined in this study. Hypothesis \(H_{2c}\) was supported for School A for survey question number 36 [Students in our school want to learn.] \((r = -0.384*, p = 0.025)\). School B had one statistically significant relationship \((r = -0.389*, p = 0.025)\) between Math HSAP scores and the climate of high expectations correlate. School B for survey question number 31 [All staff believe that all students can learn regardless of their ability.] \((r = 0.595*, p = 0.032)\). These findings correspond with that of earlier research of Thernstrom.

The third research question examined the relationship between the correlate of climate of high expectations and student achievement. Results indicated School A had one statistically significant relationship between English HSAP scores and the climate of high expectations correlate \((r = -0.559*, p = 0.047)\) and one statistically significant relationship between Math HSAP scores and the climate of high expectations correlate \((r = -0.588*, p = 0.035)\) between the climate of high expectations correlate and U.S. History and the Constitution end-of-course scores. The findings for research question three supports one of the nine hypotheses outlined in this study. Hypothesis \(H_{3c}\) was supported for School B for survey question number 31 [All staff believe that all students can learn regardless of their ability.] \((r = 0.582*, p = 0.047)\) between Physical Science End-of-Course scores and the safe and orderly environment correlate.
and Thernstrom (2003) and others such as Garrity (2004) that support the relationship between a climate of high expectations and increased student achievement. Garrity’s research within a New York suburban school district demonstrated the relationship between a climate of high expectations and increased performance for both underperforming and high performing students (2004).

The fourth research question examined the relationship between the correlate of frequent monitoring of student progress and student achievement. Results indicated School A had one statistically significant relationship ($r = -.524^{**}$, $p = .002$) between Math HSAP end-of-course scores and the frequent monitoring of student progress correlate and one statistically significant relationship ($r = .368^*, p = .035$) between Biology I end-of-course scores and the frequent monitoring of student progress correlate. School B had one statistically significant relationship ($r = .709^{**}$, $p = .007$) between U.S. History and the Constitution end-of-course scores and the frequent monitoring of student progress correlate, one statistically significant relationship ($r = -.579^*, p = .038$) between English I end-of-course scores and the frequent monitoring of student progress correlate, and one statistically significant relationship ($r = -.664^*, p = .013$) between U.S. History and the Constitution end-of-course scores and the frequent monitoring of student progress correlate. The findings for research question four supports two of the nine hypotheses outlined in this study. Hypothesis $H_{4e}$ was supported for School A for survey question number 57 [Results from students’ progress are used to plan instruction.] ($r = .368^*, p = .035$). Hypothesis $H_{4g}$ was supported for School B for survey question number 11 [Teachers promptly evaluate and return homework.] ($r = .709^{**}$, $p = .007$). These findings correspond with those of earlier research that examined the relationship between frequent monitoring of student progress and student achievement. Just for the Kids (2005) and Zargarpour (2005) found student achievement increases when students are frequently monitored and assessed and when instruction is driven by data collected from these assessments.

The fifth research question examined the relationship between the correlate of an opportunity to learn and student time on task and student achievement. Results indicated School A had one statistically significant relationship ($r = -.393^*$, $p = .024$) between Chemistry end-of-course scores and the opportunity to learn and student time on task correlate, one statistically significant relationship ($r = -.402^*$, $p = .020$) between Algebra I end-of-course scores and the opportunity to learn and student time on task correlate, and one statistically significant relationship ($r = -.375^*, p = .032$) between Math HSAP scores and the opportunity to learn and student time on task correlate. School B had one statistically significant relationship ($r = -.696^{**}$, $p = .008$) between English HSAP and the opportunity to learn and student time on task correlate and one statistically significant relationship ($r = -.628^*, p = .022$) between Physical Science end-of-course scores and the opportunity to learn and student time on task correlate. The findings for research question five do not support any of the nine hypotheses outlined in this study because no positive statistically significant relationships were found. However, the negative statistically significant relationships and number of moderate to weak positive correlations found correspond with that of earlier research that examined the relationship between the opportunity to learn and student time on task and student achievement.

Ross, McDonald, Alberg, and McSparrin-Gallagher’s (2007) research in an inner-city middle school demonstrated that given an opportunity to learn and appropriate time on task, student performance improved. The principal and leaders in this school extended the learning time schedule, focused on academic rigor, and encouraged college attendance for every student. Leadership also devoted substantial time and resources to monitoring and assessing student learning to target ways to best help students learn. In this same vein, the research of Just for the Kids (2005) demonstrated the importance of teachers using data from assessments to monitor and adjust instruction to ensure students have an opportunity to learn and appropriate time on task to master course content.

The sixth research question examined the relationship between the correlate of positive home-school relations and student achievement. Results indicated School A had one statistically significant relationship ($r = .427^*$, $p = .013$) between Math for the Technologies end-of-course scores and the positive home-school relations correlate. School B had one statistically significant relationship ($r = .690^{**}$, $p = .009$) between Biology I end-of-course scores and the positive home-school relations correlate and
one statistically significant relationship ($r = -.570^*, p = .042$) between Physical Science end-of-course scores and the positive home-school relations correlate. The findings for research question six supports two of the nine hypotheses outlined in this study. Hypothesis $H_{6d}$ was supported for School A for survey question number 8 [Regular, frequent home-school communications are maintained.] ($r = .427^*, p = .013$). Hypothesis $H_{6e}$ was supported for School B for survey question number 8 [Regular, frequent home-school communications are maintained.] ($r = .690^{**}, p = .009$). These findings correspond with that of earlier research regarding the home and school relationship and the influence on student achievement. Cole (2003) found that the home-school relations correlate was the greatest predictor of success of all the effective schools correlates. Along these lines, Ouimette, Feldman, and Tung’s (2006) case study at the Boston Arts Academy found that communication and collaboration of parents, students and teachers were crucial to increasing student achievement.

**DISCUSSION**

The findings of this study broaden the literature regarding the Effective Schools Model and the relationship between student achievements, even though only 11 statistically significant correlations were found for School A and 13 statistically significant correlations were found for School B. Although few statistically significant correlations were found in this study, the large number of weak to moderate positive and negative correlations supports the findings of earlier research and demonstrate that further discussion, clarification, and research is needed to determine how these findings can benefit online schools. For example, Doran’s (2004) study found no statistically significant relationship between student achievement (norm referenced test scores for grades 4, 6, and 8 and SAT scores in high school) in the international schools sampled and effective schools characteristics as perceived by teachers. In addition, Johnson (2008) found no statistically significant relationships between eighth grade student perceptions of the school effectiveness domains and mathematics and reading achievement but noted a high number of negative correlations. Higdon (1987) found little correlation between any of the effective schools correlates and student achievement. In addition, Lamendola (2002) found no significant correlation between school performance and effective schools characteristics in low socioeconomic status elementary schools in Buffalo, New York. These findings are consistent with earlier findings in the literature. For example, Zigarelli (1996) found no evidence of a relationship between effective schools characteristics and student performance but rather concluded success on standardized tests was more likely related to student and family variables. Earlier research by Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York (1966), The Plowden Committee (1967), and Jencks, Smith, Acland, Bane, Cohen, Gintis, … & Michelson (1972) support Zigarelli’s conclusions.

**Theoretical Implications**

As the results of this study demonstrated, more research is needed to determine what factors contribute to student achievement. Researchers (Barbour & Reeves, 2009; Picciano & Seaman, 2007; Watson, Murin, Vashaw, Gemin, & Rapp, 2010) assert more research is needed to determine specific variables that contribute to student success before specific factors can be identified or a model created to effectively assess K-12 online performance. If specific factors or a model can be identified that effectively measure success in teaching and learning within online schools, educational leaders will be able to make improvements to better meet the needs of all students and ensure a “learning for all” mission that is at the heart of the Effective Schools Model. Although this study found few statistically significant relationships, one strength was the contribution to the limited research available pertaining to K-12 online education. This study provided insight into the perceptions of South Carolina online teachers regarding the Effective Schools Model and its relationship to student achievement. When politicians, educators, parents, the community and other interest groups inquire about a framework or set of school characteristics that may increase student achievement, educational leaders may reference the findings of this study to gain additional insight into factors that may or may not contribute to student achievement.

**Practical Implications**

Although the findings of this study did not reveal many statistically significant relationships between teachers’ perceptions of the Effective Schools
Model and student achievement as measured by standardized test scores, a lack of significant correlations does not mean that teachers’ perceptions of the Effective Schools Model and student achievement are not related in any way. The findings of this study noted School A had an overall higher mean score for participant responses than School B, revealing that more teachers from School A either agreed or strongly agreed that they perceived the effective schools correlates to be present in their school. In addition, School A also had a higher mean score for student standardized test scores than School B. While correlation does not imply causation, the findings of this study led the researcher to conclude School A may be implementing some or all of the effective schools correlates: instructional leadership, clear and focused mission, safe and orderly environment, climate of high expectations, frequent monitoring of student progress, opportunity to learn and student time on task, and positive home-school relations (Lezotte & McKee, 2002).

However, because of the number of moderate to weak correlations found in this study, the researcher concluded unexplained factors are most likely responsible for either an increase or decrease in student achievement. The findings of this study support Zigarelli (1996) and Cavanaugh’s (2009) conclusion that the effectiveness of online schools and the success of teachers and students is determined by a complex system of educational, political, fiscal, technological, and cultural influences. Consequently, the unexplained factors that influenced this study’s findings could include variables beyond the school variables measured by the Effective Schools Model, such as student and family variables.

These unexplained factors warrant further research. Slykhuis and Park (2006) examined a combination of student-related success factors, such as age, gender, technology skills, and content mastery that contributed to student success and overall school effectiveness. Some of these student success factors could have been present in this study to either positively or negatively influence student achievement or overall school effectiveness. However, these specific variables were not examined in this study because the Effective Schools Model was not designed to measure these variables. These findings support West Ed.’s (2008) assertion regarding the lack of or limited existing frameworks available for evaluators to use to collect data or assess program quality.

CONCLUSION

In conclusion, regardless of factors or variables present in schools, educational reform movements such as No Child Left Behind (NCLB) legislation encourage researchers and educators to focus on improving teaching and learning and to find models or specific factors that may contribute to an increase in student achievement and effective teaching (U.S. Department of Education, 2010a). Learning more about what specific factors or variables contribute to school effectiveness is important for educational institutions, especially online schools that are growing swiftly and comprise a diverse student population. Additional research into online schools and the Effective Schools Model is beneficial for all stakeholders in an era where educational leaders are accountable for student achievement and teacher effectiveness. The findings of this study provide additional insight regarding what practices schools may implement to increase student achievement, but they also pose a challenge by demonstrating how unexplained factors also influence teaching and student learning. The findings of this study demonstrate the need for additional research within online schools in order to elucidate specific effective schools characteristics that clearly demonstrate success in teaching and learning, as well as the need for an effective instrument to collect data and assess online education. The more that is known about what specific practices or variables make schools effective will help educational institutions ensure student and teacher success and achieve a “learning for all” mission.

Author Biography

Carmen Stone, Ed.D, holds a Master of Arts in Teaching from the University of South Carolina and Doctorate of Education in Organizational Leadership from Grand Canyon University. She currently is an instructor for Piedmont Technical College in South Carolina. She is certified as a middle and high school English teacher and also works as a clinical supervisor for Grand Canyon University mentoring teacher candidates. Her research interests include Common Core State Standards, curriculum design and assessment, online education, as well as student retention and engagement, especially at the collegiate level.
References


Lamendola, B. (2002). Effective school correlates in high-performing, high-poverty elementary schools in a large urban district in New York State. *DAI, 63*(03A), 114.


Watson, J., & Gemin, B. (2008). *Promising practices in online learning: Management and operations of online programs*. Vienna, VA:
North American Council for Online Learning (NACOL).


