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How Student-to-Teacher Interactions Encourage Self-Regulated Learning in One Computer-Based Alternative Program

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EdS, Walden University, 2011

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Dissertation Submitted in Partial Fulfillment

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Abstract

The purpose of this exploratory case study was to examine how student-to-teacher interactions encourage students to develop self-regulated learning (SRL) habits and skills. Zimmerman's social cognitive theory of SRL, which supposes a relationship between academic success and SRL, is used as a conceptual framework. The representative case is a computer-based alternative education program for students at risk of dropping out of high school in grades 10–12. The teachers worked one-on-one with students in a computer lab while the students engaged in mastery-based learning using Apex Learning Inc. digital curriculum. Five teachers responded to three questionnaires to examine how student-to-teacher interactions influenced student-to-content interactions, and students' forethought, performance, and evaluation behavior. The teachers also submitted instructional artifacts and described instructional tools, activity types, and scaffolds within the digital curriculum. After analysis of primary and secondary data, the results showed the following: Student-to-teacher interactions encouraged students to engage in forethought behaviors associated with goal setting and strategic planning; examples of performance behaviors were using the content to increase understanding, navigating the content efficiently and effectively, monitoring the use of task strategies, and developing thinking steps; and examples of evaluative behaviors were calibrating and making accurate self-judgments. The study can promote social change by helping students at-risk of dropping out of school develop SRL strategies correlated to academic achievement and high school graduation. SRL habits are transferable to everyday behaviors associated with continued employment, maintaining healthy relationships, and lifelong learning.

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Chapter 1: Introduction to the Study

Self-regulated learning (SRL) is a vital theory often overlooked by administrators and teachers in kindergarten through 12th grade (K–12) schools. Zimmerman (2002) defined SRL as one's ability to be self-directed in order to complete an academic task. Students who exhibit self-regulatory habits have control over one or more aspects associated with academic learning, such as motivation, behavior, and cognition. Zimmerman's (2002) framework consists of three phases: forethought, performance, and evaluation. Educators described SRL as the study skills needed for academic success, SRL is more complex and cyclical, consisting of academic, behavioral, cognitive, and metacognitive processes (Zimmerman, 2002).

Students with well-developed SRL skills demonstrate the ability to set learning goals, possess learning strategies, and monitor progress toward their goals. Principals and teachers describe these students as being engaged, motivated, and confident. High-achieving students possess learning strategies that support their efforts before, during, and after learning (Zimmerman, 2002). Conversely, low-achieving students are those who do not possess SRL strategies or who do not use them effectively.

Classroom teachers play an integral role in helping students develop SRL skills by providing focused instruction. When teachers used SRL strategies to deliver content-specific instruction, student learning outcomes improved (Azevedo, 2007; Dignath & Büttner, 2008; Zimmerman, 2002). In addition to facilitating positive improvement in terms of students' academic processes, teachers who provided SRL instruction positively

influenced their students' behavioral, cognitive, and metacognitive processes (Zimmerman, 2002, 2008).

This case study provides a rich description of how teachers promote SRL in a unique instructional setting—a computer-based learning environment (CBLE). The study took place in a single alternative education program housed in a former elementary school building in a Midwest state. The alternative program serves students in grades 10–12, and daily school attendance is required. Students attend the alternative program for a variety of reasons, such as credit deficiency, being pregnant or already being a parent, academic failure at other institutions, or being employed so their working hours interfered with degree completion. Seven highly qualified teachers worked with the students enrolled in the alternative education program and served as the units of analysis in the study. The results of this study could potentially lead to improvements in teaching and learning in CBLEs, especially for programs serving low-achieving students and students at risk of dropping out of high school.

In Chapter 1, I discuss the necessity of alternative education settings by defining the purpose of the settings, identifying the student population served in the settings, and examining the curricular materials used in these settings. After establishing the background, I address why students need to develop SRL skills and summarize the theoretical framework, which is Zimmerman's social cognitive theory of self-regulated learning. Toward the end of Chapter 1, I note a research gap and then present the problem

statement, discuss the implications for social change, and identify the four research questions addressed in the case study.

Background

In the United States (US), declining public school enrollments, school choice vouchers, and the adoption of Common Core State Standards caused a change in the K-12 educational system. Each year, school leadership teams develop improvement plans that focus on increasing student achievement. This task requires innovation and creativity to design spaces that address the unique instructional needs of an economically, ethnically, and socially diverse student population. Many school districts create alternative schools and programs that specialize in meeting the needs of at-risk and nontraditional students (Watson, Murin, Vashaw, Germin, & Rapp, 2011). According to Carver, Lewis, and Tice (2010), approximately 10,300 alternative educational settings operated in the United States during the 2007-2008 school year. The school districts in which those educational sites are located indicated that 68% of students graduated from the programs with a diploma while 16% transferred to adult education to complete the High School Equivalency (HSE) exam (Carver et al., 2010).

According to Carver et al. (2010), alternative education schools and programs support a student population and characterize the learning environment as:

> Alternative schools and programs are designed to address the needs of students that typically cannot be met in regular schools. The students who attend alternative schools and programs are usually at risk of

> educational failure (as indicated by poor grades, truancy, disruptive behavior, pregnancy, or similar factors associated with temporary or permanent withdrawal from school). (p. 13)

Seventeen percent of alternative education schools use online licensed content or computer-assisted instruction (CAI) to deliver their curriculum to students at risk of dropping out (Carver et al., 2010). Alternative settings that use CAI attract students at risk of dropping out because of the nontraditional instructional approaches they implement. CAI allows students the opportunity to work at their own pace, offers a reduced or flexible class schedule, and provides access to personalized instruction from a certified teacher (Barnett, 2016; Barr & Parrett, 2001; Ronsisvalle & Watkins, 2005; Staker & Horn, 2012; Watson et al., 2011). Alternative education settings vary from strictly online environments to blended learning environments, which include face-to-face meetings. Whether online or blended, the curriculum is delivered via the Internet and is contained within a learning management system, thus making the setting a CBLE.

Frequently, alternative educational programs purchase licensed digital curriculum from vendors, such as Apex Learning, CompassLearning, Edgenuity, FuelEd, and Edmentum. These providers design products with similar features including a series of lessons. Students move through courses by interacting with the online content; for example, students read a text, listen to an audio file, watch a video, or complete interactive activities within their courses. Some digital curriculum providers supply guided notes and worksheets. To progress through the course, students must demonstrate

mastery by earning a required percentage on an assessment (e.g., quizzes, tests, and final exams). Students may be allowed multiple attempts to master the content. Figure 1 shows an image of the digital curriculum for a Biology I course.

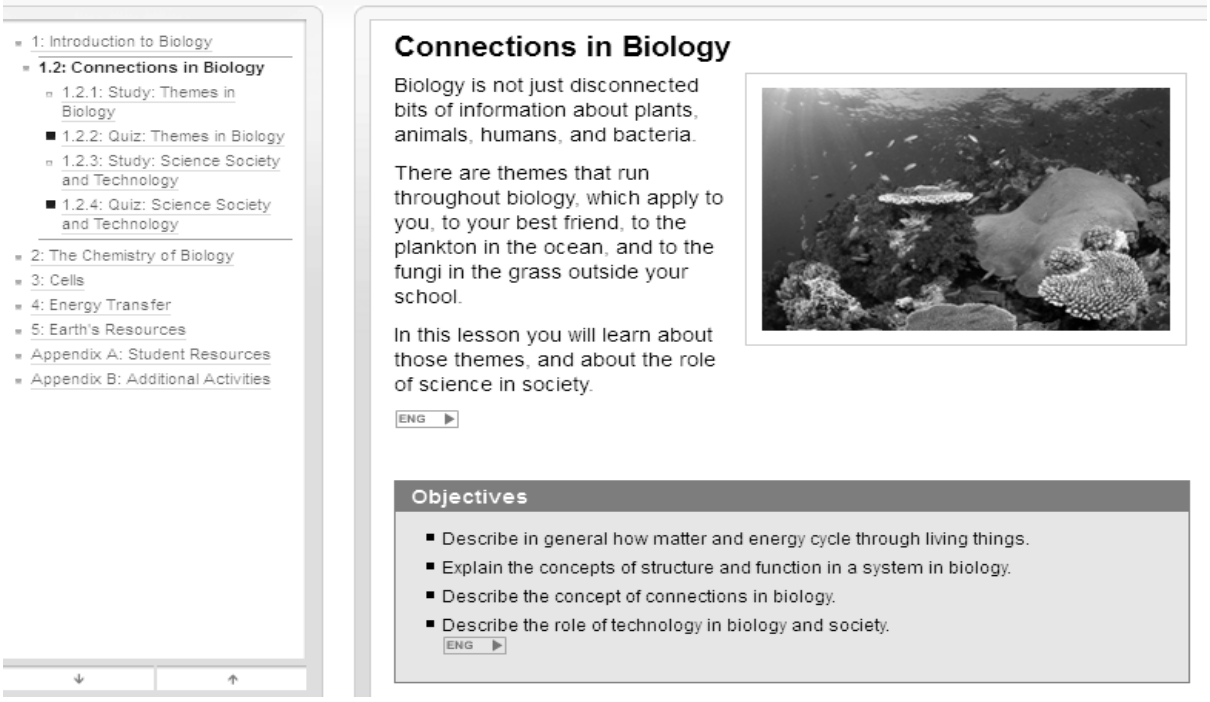


Figure 1. Example of digital curriculum that shows the course navigation tool on the left and unit introductory material on the right.

All students learning in a CBLE must use a variety of SRL skills to manage the cognitive load of simultaneously learning how to navigate the digital content and master the course material. In a CBLE, the content is presented in a variety of formats, ranging from audiovisual files to hyperlinks to plain text. Moos (2013) said that students in a CBLE have control over their learning path as they navigate the digital curriculum, which influences the amount of cognitive load placed on them. Students with academic deficiencies became overwhelmed by the choices offered by the CBLE. Moos (2013)

suggested that cognitive load either increases or decreases as each student learns how to identify the supports essential for his or her own learning needs.

In a CBLE, instructional designers incorporate scaffolds to provide feedback before, during, and after learning. These strategic and adaptive scaffolds are designed to increase student performance (Azevedo, 2007; Moos, 2013). Figure 1 shows an example of a strategic scaffold in which the student receives introductory information, including the learning objectives for unit one. The introductory material promotes the forethought phase of SRL by triggering the student to activate prior knowledge. The introductory material also initiates strategic planning. Azevedo (2007) and Moos (2013) classified the introductory material as strategic. Some students in studies by Azevedo (2007) and Moos (2013) took the time to read introductory material, whereas others in the studies chose not to read the material because they believed it was not pertinent to their assignment or learning.

In the traditional classroom, the teacher sets the pace of learning and adheres to seat-time requirements. Providers sell their curriculum to schools on the premise that competency- or mastery-based learning increases the pace at which students at risk of dropping out earn or recover credits. The educational software allows credit-deficient students to decrease the time needed to complete required course material and ensure graduation within 4 to 5 years (Carver et al., 2010; Watson et al., 2011).

Competency-based courses may overwhelm newly enrolled alternative education students because they have had limited experiences directing their own learning. Digital

curriculum companies such as Apex Learning provide teachers with lesson pacing recommendations (e.g., hours per semester and the average time of individual course assignments); however, daily interactions with teachers also influence whether students develop time-management skills. Alternative education programs often sought waivers from the Department of Education in their state to operate under competency- or mastery-based learning models (Sturgis & Patrick, 2010). A waiver of seat-time (i.e., Carnegie unit) enabled alternative education students to advance through course requirements independent of time based on their demonstration of mastery. Students progressed at their own pace instead of the pace set by their classroom teacher (Watson et al., 2011).

In a CBLE, online instruction content is housed within a learning management system. Depending on the program, instruction may be presented synchronously or asynchronously in a nonlinear format using text, audio, and visual information (Green, Moos, & Azevedo, 2011; Moos & Azevedo, 2009). Throughout my study, I used the term CBLE interchangeably with autonomous learning environment, blended learning, computer-assisted learning, computer-based alternative program, computer-based learning, digital curriculum, distance education, online learning, technology-enhanced learning, and virtual education.

Within a CBLE, the layout of the course material is important and requires intentional planning on behalf of an instructional design team. Digital curriculum courses contain subject matter and two types of scaffolding—adaptive and strategic. Scaffolding facilitates student learning and mastery of the curricular goals by modeling, prompting,

and encouraging students to develop habits of forethought, monitoring, and evaluation (Moos & Azevedo, 2009). In some cases, human tutors or intelligent tutoring systems in the CBLE facilitate development of SRL habits. **S**tudents who develop effective SRL strategies demonstrate positive learning outcomes (Aleven, Roll, McLaren, & Koedinger, 2010).

Over a decade in the United States, the use of CBLEs has increased in the K-12 education sector. All 50 states experienced growth in the number of courses offered in a blended or online format, and more than 1.3 million high school students enrolled in a technology-enhanced course in 2010 (Aud et al., 2012). Practices and legislative policies vary from state to state, which presented a challenge for educational researchers as they attempted to identify indicators of student achievement (Watson et al., 2011). Variations and lack of consistency in programming, financial support, content, teacher effectiveness, and technology usage made it difficult for educational researchers to determine conditions that best support learning. According to Watson et al. (2011), measurement of student achievement in CBLEs simply did not exist.

In a Midwestern state, four schools provide educational services through CBLEs. In the last two years, state officials have developed a course access portal for schools with limited course offerings. The Indiana Department of Education (IDOE, 2017) indicated schools can provide online coursework at the request of the student and/or parents. Finally, the IDOE (2017) allowed school corporations to create alternative education programs to meet the needs of students who were unsuccessful in the

traditional setting. During the 2015-2016 academic school year, 212 alternative education programs existed and served approximately 17,692 students in grades 6–12. Of the 212 programs, roughly 75% relied on computer software purchased from a digital curriculum provider (J. Johns, personal communication, January 18, 2017). While these CBLEs increased learning opportunities across the state, little supporting evidence was available related to learner characteristics, quality, effectiveness, and student success.

Students at risk of dropping out of school have experienced school failure and exhibited behaviors that indicate low self-efficacy and self-motivation, precursors to integral components of the forethought phase (Cleary, Callan, & Zimmerman, 2013). Poor self-confidence leads to an increase in absenteeism and incidents of behavioral referrals to the principal's office. As a result, many students at risk of dropping out have neither acquired the necessary prior knowledge nor developed the self-regulation skills needed for academic success. Therefore, students at risk of dropping out likely do not accurately monitor assess their learning – skills representative of the performance phase of SRL. In contrast, students who correctly judged their performance were able to correct their learning errors, indicating that they engaged in self-reflection, another phase of SRL. Zimmerman (2002) linked positive student outcomes, such as self-assessment, to the performance phase strategies used in SRL. Moreover, students who experienced success in learning continued to demonstrate behaviors associated with self-efficacy and motivation, which propels the cycle of SRL (Zimmerman, 2002).

In addition, students at risk of dropping out attributed failure to a lack of control of their situation rather than their ability to reflect on strategies used during the performance phase of SRL. Students at risk of dropping out struggled to pass graduation-qualifying exams and often exited high school before graduation (Cleary & Zimmerman, 2004; Cleary et al., 2013; Flower, McDaniel, & Jolivette, 2011; Watson et al., 2011). In a CBLE, high-achieving students developed SRL habits associated with the three phases of SRL: forethought, performance, and self-evaluation (Aleven et al., 2010; Zimmerman, 2002). Examples of SRL included goal-setting, self-monitoring, help-seeking, and note-taking activities, as well as reflecting on progress (Cleary et al., 2013; Whipp & Chiarelli, 2004).

In Whipp and Chiarelli's (2004) case study about self-regulation in a graduate level web-based course, student motivation and the organization of the learning environment positively influenced the way students used SRL strategies in their online classrooms. Students who received SRL support from a human tutor before and during learning demonstrated significantly greater gains in assignment learning than unsupported students (Azevedo, Cromley, Moos, Greene, & Winters, 2011). To improve learning outcomes, Abrami, Bernard, Bures, Borokhovski, and Tamim (2011) recommended that future studies should examine student-to-content, student-to-student, and student-to-teacher interactions in combination with Zimmerman's theory of SRL to improve learning outcomes.

Purpose of the Study

My case study described how alternative education teachers promoted SRL in a CBLE. More specifically, I examined two interactions within the alternative program: the built-in/opt-in tools students used while interacting with the Apex Learning content, and the instructional strategies used during the student-to-teacher interactions. To develop instruments for the actual study, I conducted a pilot study of three off-campus certified teachers who possessed instructional experience in a CBLE. From this pilot study, I developed three self-designed questionnaires. In addition, I examined school artifacts to identify the subprocesses of forethought, performance, and self-reflection that the highly qualified teachers taught their struggling students. Through these instruments and artifacts, I constructed a rich description of how the student-to-teacher interactions promoted SRL in a CBLE.

Operational Definitions

This study uses operational terms developed by the International Association for K–12 Online Learning (iNACOL) to establish a common language for the development of "policy, practice, and understanding of and within the field" (iNACOL, 2011, p. 2) of online and blended learning. Following are the operational terms:

Activity types: Course design elements that contain instructional content within the Apex Learning curriculum (Hiebert, Menon, Martin, & Bach, 2009).

Adaptive scaffold: Support offered during learning, such as text-to-speech, definitions, pronunciations, illustrations, and highlighted text (Hiebert et al., 2009).

Alternative education setting: An institution designed to address the needs of students which typically cannot be met in regular schools (Carver et al., 2010).

At-risk or struggling student: Students in danger of not passing a course or graduating, including any student who performed poorly academically or faced learning impediments not limited to socioeconomic status, behavioral and learning disabilities, and home, family, and community stresses (iNACOL, 2011).

Blended learning: Any time a student learns at least in part at a supervised brick-and-mortar location away from home as well as through online delivery with some element of student control over time, place, path, or pace (Staker & Horn, 2012).

Built-in/opt-in supports: Digital curriculum supports that encourage students to engage in self-directed learning by modeling metacognitive strategies (Hiebert et al., 2009).

Carnegie unit: The number of instructional minutes required by state department of education to earn a credit (iNACOL, 2011).

Competency-based learning: Curricular approach with explicit and measurable learning objectives that allow students to advance upon mastery (iNACOL, 2011).

Computer-assisted instruction (CAI): Use of educational software to enhance the mastering of educational concepts or standards without the involvement of a teacher (iNACOL, 2011).

Computer-based learning environment (CBLE): A learning environment designed for an instructional purpose that uses technology to support the learner in achieving the goals of instruction (Lajoie & Azevedo, 2006).

Digital curriculum provider: An organization providing courses offered over the Internet (iNACOL, 2011).

Forethought: Processes and beliefs that occur before learning (Zimmerman, 2002).

Highly qualified teacher/certified teacher: Per the current federal definition, one who is fully certified and/or licensed by the state, held at least a bachelor's degree from a 4-year institution, and demonstrated competence in each core academic subject area in which he or she taught (U.S. Department of Education (DOE), 2004).

Licensed content: Content with limited usage and only available with permission, generally for a fee (iNACOL, 2011).

Pace/pacing: The speed or time allotted with which a teacher or student moves through a course (iNACOL, 2011).

Performance: Processes and beliefs that occur during learning (Zimmerman, 2002).

Seat-time: The amount of instructional time to earn credit (Carnegie unit), which is indicated in online learning by the amount of time engaged in coursework (iNACOL, 2011).

Self-paced: Online courses in which students work at their own pace within an overall time frame (iNACOL, 2011).

Self-reflection: Processes and beliefs that occur after learning (Zimmerman, 2002).

Self-regulated learning (SRL): Self-generated thoughts, feelings, and behaviors oriented to attaining goals (Zimmerman, 2002).

Strategic scaffolding: Curricular supports to encourage student ownership through thinking and modeling strategies (Hiebert et al., 2009).

Student-to-content interactions: Ways students engage in learning in a CBLE, reading informational text, viewing short video clips, solving practice problems, writing essays or journal entries, and interacting with drag-and-drop activities (Abrami et al., 2011; Bol & Garner, 2011).

Student-to-teacher interactions: Academically-focused conversations occurring between the individual students and the teacher (Abrami et al., 2011; Bol & Garner, 2011).

Implications for Social Change

CBLEs require students to engage in autonomous learning and enact several SRL strategies. Azevedo and Cromley (2004) found that behaviors related to planning and self-monitoring during performance increased the likelihood that students experienced positive learning outcomes within a CBLE. Kostons, Van Gog, and Paas (2012) found that students who had control over their learning and received instruction in the performance and self-evaluation phases of Zimmerman's theory of SRL also increased their learning outcomes. Winters, Greene, and Costich (2008) suggested SRL was the mediator between the potential of the CBLE and the quality of academic performance.

A study of alternative education programs and SRL is critical to improving learning outcomes across a Midwestern state. The student four-year cohort graduation rate is used as a leading indicator of the effectiveness of high schools and higher education institutions. During the 2015-2016 school year, alternative education programs

reported 6,243 grade 12 students participated in alternative education programs across the state. The graduation rate for these students was 53%.

According to Januszewski and Molenda (2013), studies in the field of educational technology are needed not only to facilitate learning but also to improve or enhance teaching and learning. Educational technologists focus their attention on creating, using, and managing technology in a manner that improves their communities. To promote positive social change in educational technology and within computer-based alternative education programs, educators and policymakers would benefit from an increased understanding of ways to support struggling learners. These students frequently drop out of high school and earn an average of $15,000 less per year than individuals who earn a high school diploma (Alliance for Excellent Education, 2015). Annual income estimations do not communicate the full price of dropping out of high school, however. Over a 40-year career, individuals who did not earn a high school diploma or HSE diploma earned an average $1 million less in income; earning a high school diploma increased lifetime earnings by 33% (Carnevale, Rose, & Cheah, 2011).

Throughout their lifetimes, individuals who drop out of high school experience unemployment and financial hardship (Alliance for Excellent Education, 2015). SRL habits manifest in terms of behaviors associated with obtaining and holding employment, maintaining relationships, and pursuing task-orientated goals. Individuals able to enact SRL behaviors can complete tasks and reflect on their work and develop skills needed for

goal setting, decision-making, and planning strategically for the future (McClelland, Ponitz, Messersmith, & Tominey, 2010).

Results from my study may promote a dialogue within the alternative education community about the importance of teaching SRL strategies to students at risk of dropping out. Documenting ways one alternative education program provided SRL instruction in a CBLE could lead to the development of consistent practices across the state. More specifically, educators and policymakers may establish criteria for selecting a quality digital curriculum, promoting the use of student-to-content scaffolds, and reporting effective student-to-teacher interactions.

Research Questions

RQ1: What SRL habits do alternative schoolteachers perceive were most essential for struggling students to develop when working in a CBLE?

RQ2: In what ways do teachers encourage struggling students to use SRL strategies in a CBLE?

RQ3: How do teachers use student-to-content interactions to promote forethought, performance, and self-evaluation in a CBLE?

RQ4: How do student-to-teacher interactions promote forethought, performance, and evaluation in a CBLE?

Theoretical Framework

The social-cognitive theory of SRL is the theoretical framework of my study and served as a guide for how teachers interact with students in a CBLE to encourage them to

develop SRL skills and strategies. SRL research is synonymous with the terms metacognition and self-regulation. SRL refers to self-generated thoughts, feelings, and behaviors aligned with attaining academic goals (Zimmerman, 2002, 2008). Pintrich, Winne and Hadwin, and Zimmerman have designed studies, which have contributed to the body of SRL research. While unique, their frameworks are based on four similar assumptions: (a) students are active participants in learning, (b) one's ability to self-regulate is mediated by personal attributes, thoughts, and feelings, (c) task completion is influenced by planning steps and selecting the appropriate strategies that facilitate learning, and (d) self-regulation is based on one's stage of social and emotional development (Winters et al., 2008).

Many students who enrolled in computer-based alternative programs were at risk of dropping out of high school. The reasons why students dropped out of high school were not unique to one program. Rather, struggling students share common characteristics such as low socioeconomic status, truancy, failing grades, and low standardized test scores (Casillas et al., 2012). The need for SRL habits begins in middle school. Students who struggle to develop SRL habits have higher incidences of absenteeism and academic failure. Students who experienced years of school failure exhibited signs of low self-efficacy and motivation (Cleary & Zimmerman, 2004; Cleary et al., 2013). Self-efficacy, motivation, and the interplay of students' personal attributes within the learning environment encouraged students to use SRL strategies and continue toward task completion. Zimmerman's social cognitive theory incorporated both self-

efficacy and motivation into phases of SRL, thus making the use of his framework ideal for my study.

Zimmerman's (2002) framework consisted of three phases: forethought, performance, and evaluation. Forethought was identified as the initial phase of SRL and included subprocesses related to goal setting and planning. In the second phase, the performance stage, students engaged in subprocesses associated with time management, self-observation, and task strategies. In the third phase of SRL, evaluation, students evaluated their progress and related their performance to causal attributes associated with self-efficacy, satisfaction, and motivation (Zimmerman, 2002). These phases were described as cyclical rather than linear. Students moved freely from one phase to the next. Students who demonstrated SRL established specific goals, structured their time, used learning strategies, practiced self-reflection, sought help, and believed in their ability to accomplish tasks.

Nature of the Study

Butler (2011) suggested case study research offered the best design to determine how SRL was shaped by reality and the context of the learning environment. The case study research design allows institutional to describe, explore, and evaluate a phenomenon of interest (Merriam, 2009). An excellent case study is one designed with a specific purpose in mind; the institutional selects and evaluates a specific case because of the way the case satisfies an interest of some entity, provide insight into how an entity

play a role in supporting a phenomenon, and/or use several cases to examine a phenomenon (Merriam, 2009; Yin, 2014).

To increase understanding, the work of Merriam and Yin suggested institutional researchers should use a purposeful sampling strategy to identify a bound case (Merriam, 1998; Yin, 2014). Purposeful sampling enabled the researcher to gather contextual evidence from the case and analyzed evidence to paint a rich description of the entity. The theoretical framework was interwoven within each section of the study from the research question to the methodology and finally into the conclusion (Merriam, 1998; Yin, 2014).

In this study, I identified one case to serve as the research site: an alternative education program in a Midwestern state that helped struggling high school students in grades 10-12. The following operational definitions described the site: alternative education, blended learning environment, and competency-based. The program, a CBLE, used licensed content to assist in the delivery of instruction.

Yin (2014) would classify the site within my study as a representative case; Patton (2014) would classify the site as a single-significant case. Using both case classifications, I designed a study to document the unique student-to-teacher interactions that influenced the student-to-content interactions. The overall design was a representative (single alternative program) case study with multiple units of analysis (teachers) embedded within the program. I explored how the participant pool of seven highly qualified teachers within the program encouraged their struggling students to

incorporate SRL skills and strategies into their everyday interactions with the licensed content. I paid close attention to the subprocesses of forethought, performance, and evaluation that students were encouraged to use within the learning environment: goal setting, self-monitoring, self-evaluation, task strategies, help-seeking, and time management (Dabbagh & Kitsantas, 2004). Zimmerman's theory of SRL provided the framework to focus, identify, and match common subprocesses and practices of teachers within the selected computer-based alternative program.

Methodology

Case study research requires careful consideration of the research question(s), theoretical framework, selection of the case, theory, and criteria for interpreting the data (Yin, 2014). In addition, the researcher controls for quality by having a defined set of measurements, procedures for limiting internal and external validity, and blueprints for reliability. Merriam (1998, 2009) and Yin (2014) encouraged educational researchers to use a purposeful sampling strategy in case study design in order to select participants who were most likely to provide information that answered the research question(s). The development of the selection criteria was also essential to choosing a participant pool that provided for a rich and in-depth study (Merriam, 1998; Patton, 2002). Furthermore, Yin (2014) encouraged first-time researchers to maintain case notes to document the decisions related to the study to provide a blueprint for other researchers as well as justification for the study.

The flexible nature of case study design enables researchers to conduct in-depth investigations of complex situations and allows contexts to be structured as comparative, descriptive, or exploratory (Yin, 2014). Additionally, SRL study requires a design methodology that relies upon multiple sources of data (Butler, 2011; Yin, 2014). By using the case study design, I could select the optimal data to understand how students developed SRL skills through the student-to-content and student-to-teacher interactions.

Sampling

Alternative education programs in a Midwestern state are similar in that they serve students at risk of dropping out; however, the structure and organization of these learning environments differed from program to program in terms of location (e.g., within a school or separate building. Because of program variations, the state Department of Education required each alternative education programs to set two school improvement goals. Growth was tracked from one school year to the next with a statewide survey of alternative education program directors who reported student outcome data.

Program directors chose goals from three areas: academic (graduation and credits earned), behavioral (discipline referrals and attendance rates), and self-management (goal-setting). While self-management falls under SRL, I chose to examine programs that selected increased graduation rate as a goal. The rationale for the selection was based on two factors: graduation rate was based on course completion or credit earning, and students earned credits based on the interplay of their self-regulatory habits, engagement,

and interactions in the classroom. Students at risk of dropping out have not developed or do not effectively use SRL strategies; thus, teachers working in alternative education programs should provide students with instruction that encourages the use of SRL strategies.

Data Collection

I designed a case study to examine how teachers helped struggling students develop SRL habits in a CBLE. The University of Wisconsin (2010) described a questionnaire as an instrument intended to ask questions in the form of an interview and a survey. Questionnaires are used to gather information from participants within a social setting. Interviewing is one of the most vital sources of data in a case study (Patton, 2002; Yin, 2014); a well-designed questionnaire also allows the researcher to investigate the participants' perceptions of their current reality and generate relevant and high-quality findings (Patton, 2002, p. 340).

Case study research involves using sources of evidence: documentation, archival records, direct observations, participant observations, and physical artifacts (Guest, Namey, & Mitchell, 2013; Yin, 2014). I used three researcher-designed questionnaires and two additional types of evidence for data verification and triangulation. From the highly qualified teachers, I gathered secondary sources of data, which included instructional documents and other artifacts related to student work.

Researcher-Developed Online Questionnaires

The information collected from the researcher-developed online questionnaires served as the primary source of data for this case study. I selected questionnaires over teacher observations for one reason. Many of the students enrolled in the alternative program were under the age of 18, a protected group requiring parental consent; therefore, I chose to rely heavily on information gathered from the highly qualified teaching staff. The questionnaire was selected over the interview as I gathered anonymous data from the certified teaching staff at the alternative education program.

Secondary Sources of Data

I obtained documents from the highly qualified teachers employed at the alternative education program that served as the official site of the case study. The strengths associated with the use of site documents included data stability, ready accessibility, and availability for multiple reviews (Yin, 2014). I also collected physical artifacts such as classroom photos of student work, teacher-made tutorials for student orientation, and other audiovisual recordings used for instructional purposes. Physical artifacts provided insight and context for the interactions related to teaching and learning within the CBLE.

Limitations

Yin (2014) described case study methodology as flawed without a set of published rules for conducting a qualitative study and suggested its flexible nature called into question reliability and validity. I developed protocol steps to ensure that other

institutional researchers could duplicate my study in another computer-based alternative program. I established criteria for site selection, conducted a pilot study to define data collection, used the results of the pilot study to help design the case study instruments, established rules for included and excluded data, and documented the use of a folder system to collect secondary sources of data. An in-depth summary of my protocol steps is given in Chapter 4.

The number of cases selected by researchers contributes to a limitation of the study. Case studies with too few cases prevent researchers from identifying commonalities and differences within a bounded system. Likewise, a case study with too many cases produces too much data for analysis and requires more than one researcher (Yin, 2014). Establishing specific sampling criteria to ensure the selection of an information-rich alternative education program minimized my study's limitation.

The single site presented some limiting factors, as well. A strength of case study design allows researchers to paint a rich picture of "how SRL shapes or is shaped by context . . . as they unfold in authentic activity" (Butler, 2011, p. 346). Here, the authentic activity was related to, but not confined by, the actions in the classroom. An observational tool to capture student-to-teacher interactions around the online content would have provided the ideal contextual information.

Most classroom interactions occurred on an individual basis and were driven by student need or help-seeking abilities. Capturing student-to-teacher interactions would have required special audiovisual equipment to record interactions without disrupting the

process. Filming these interactions posed a potential risk to this vulnerable group because most students were under the age of 18. Additionally, the certified teaching staff had concerns regarding anonymity and future use of the recordings. To gain access to student outcome data, I used data found in the public domain. More specifically, I accessed site-specific data found within the state DOE website.

Upon identifying a site for my study, I approached the superintendent of instruction to enter into a partnership to conduct the study. During a regularly scheduled public meeting, I provided the school board and superintendent with a detailed description of my study and asked for approval. I described how I gathered data during the study and presented the board and superintendent with data use agreements, informed consent forms, and confidentiality agreements.

Delimitations

I conducted a case study of a single site with multiple participants embedded within the case. The case study provided a rich description of how a single alternative education program promoted SRL in the unique instructional setting of a CBLE. According to Merriam (2009), "the single most defining characteristic of case study research lies in delimiting the case" (p. 40). When a researcher used a single-case design strategy, the purpose of sampling "provided a rich and deep understanding of the subject and breakthrough insight and had a distinction of stand-out importance" (Patton, 2014, Module 31, para. 1). Figure 2 graphically represents the bounded case within this study.

Figure 2. Graphic representation of the bound case–an alternative education program with seven multiple units of analysis.

Summary

Christensen, Horn, and Johnson (2008) argued that K-12 was ripe for a disruptive innovation that would change the way teachers taught and students learned content. With millions of students flocking to CBLEs, the time for disruptive innovation has arrived. These learning environments attract students at risk of dropping out and nontraditional students looking for instruction tailored to their personal needs, academic or otherwise. CBLEs are ideal for these students because they gain control over certain course elements, such as time, place, path, or pace (Staker & Horn, 2012).

SRL skills are a vital topic in education, especially because they pertain to CBLEs. To achieve success in a semi- or strictly autonomous learning environment,

students must develop and use self-regulating strategies (Aleven et al., 2010; Azevedo, 2007; Schunk & Usher, 2011). Zimmerman (2002) showed a direct correlation between the effective use of SRL strategies and positive student outcomes. However, in alternative education programs, there was a limited amount of evidence to understand fully how best to support students in their development of SRL strategies. I intended to fill this gap by investigating how student-to-teacher interactions encouraged students to enact SRL while interacting with the licensed content.

A literature review discussing social cognitive theory, characteristics of students at risk of dropping out, alternative education, student engagement, and competency-based education provided in Chapter 2 describes sources of student motivation and engagement. The SRL constructs instrumental in increasing positive student outcomes will also be identified in the literature review. An overview of each phase of Zimmerman's SRL framework (forethought, performance, and evaluation) will serve as a guide to identifying tools and practices that encourage SRL within the CBLE.

Students at risk of dropping out experience school failure resulting from a variety of academic, social, and behavioral experiences inside and outside of the school environment (Brophy, 2010). This study, which examines how teachers structured the learning environment to promote struggling students' use of SRL skills, may result in higher graduation rates and development of lifelong learning skills.

Chapter 2: Literature Review

My study examined how the interactions between students and teachers influenced the use of SRL skills and strategies in a CBLE. The study determined which SRL subprocesses (forethought, performance, and evaluation) teachers encouraged students to use while interacting with digital curriculum. I evaluated the CBLE for evidence to provide a rich description of the case.

An overview of the most pertinent academic literature from the past 8 years is provided in this chapter. Additionally, this literature review includes a description of a CBLE and the population of students at risk of dropping out who are served in alternative education programs. The background defines the needs of struggling students to use SRL skills in CBLEs. I then describe the ideal educational setting for a student population at risk of dropping out.

Theories are identified that support the SRL framework in this study, including the social cognitive theory, the theory of self-determination, and frameworks associated with student engagement. I discuss common characteristics of struggling students and describe a competency-based education model. Near the end of the chapter, the three phases of Zimmerman's framework of SRL are explained and effective instructional practices of SRL in CBLEs are outlined. I conclude Chapter 2 with a summary of the literature review and a brief introduction to Chapter 3.

Literature Search Strategy

The review of the SRL literature used the following Boolean terms: *SRL, CBLEs, hypermedia, characteristics of low-achieving students*, *struggling learners*, *alternative education, school completion*, *self-determination*, *executive function*, *motivation*, and *engagement*. In addition, I used descriptive terms such as *supporting, scaffolding*, and *promoting* in conjunction with the term SRL to identify the ways students were encouraged to develop these skills. I used multiple databases, including Thoreau, ProQuest, ERIC, Academic Research Premier, and SAGE. I used Google Scholar and writing from peer-reviewed chapters found within professional handbooks to deepen my understanding of theories and methodologies associated with SRL.

I conducted a second review of the literature to identify new research between 2015 and 2016. The Research Map provided access to more than 100,000 journal articles involving learning and social sciences from 2007 to 2016. To begin, I used the topic view to explore constructs of learning and determined student motivation to be most relevant based on the subtopics in the database. The tool produced a dynamic map of student motivation, which, upon examination, showed that the subtopics most closely linked to student motivation are metacognition and SRL, motivation and autonomy, self-efficacy, and academic emotions.

The search results produced five categories: most representative articles, most cited articles, most cited authors, most key word frequency, and most frequently published journals. The dynamic map displayed a new list of references as I moved my

mouse from subtopic to subtopic. The subtopic search identified 80 representative articles. Across all subtopics, I located five representative articles published in 2015, and the most cited articles had publication dates between 2007 and 2011.

I also located 10 additional articles using Google Scholar and the subtopics found within the Research Map database. To narrow the search, I applied the "since 2015" date filter to Google Scholar and conducted a time-filtered search of the names of the individual researchers. The work of the researchers (Avezedo, Bandura, Bannert, Barr, Bols, Deci, Dignath, Green, Kistner, Lehr, Moos, Parrett, Ryan, Watson, and Zimmerman) were either identified in the initial literature review or within the Research Map database. During the second review, I used Google Scholar to identify recent publications published between 2015 and 2018. During this time frame, iNACOL and other policy organizations disseminated research related to instructional practices, student agency, and technology use in the K-12 setting. Due to the lack of scientific methodology, I omitted some relevant materials (books, policy briefs, white papers, and reports) that were relevant to my study.

Background

Forty-two states had enrollment criteria for students to participate in an alternative school or program, including "meeting some form of at-risk criteria, being suspended or expelled from a regular school, being disruptive in the general education environment, and not achieving success in a traditional school setting" (Lehr, Tan, & Ysseldyke, 2009, p. 26). Alternative education programs provide students at risk of dropping out with a

nontraditional and innovative approach to instruction. Alternative settings varied from state to state and from school to program within one state. No one model works over others; however, educators understood that students at risk of dropping out all have unique academic, behavioral, and emotional needs.

According to Deeds and DePaoli (2017), alternative settings used common practices, such as low student-to-teacher ratios, flexible time structures, and online and blended learning. Another strategy, credit recovery, had gained popularity in alternative education settings as a way for credit-deficient students to earn credits in a short time frame. Advances in CAI and competency-based education have made this possible.

Students at risk of dropping out often have experienced life stresses and traumatic events that altered the way they interact and view the world. Barnett (2016) encouraged educators to design learning environments that afford students at risk of dropping out flexibility without lowering academic expectations. Credit recovery practices can have unintended consequences and increase the achievement gap (Barnett, 2016). Quality programs have helped students at risk of dropping out identify talents and have supported the development of personal agency (Blumenthal & Rasmussen, 2015).

Alternative education programs that used CAI within a competency-based learning model provided struggling students with flexibility. These programs, usually described as CBLEs, placed unique cognitive demands on credit-deficient students (Lajoie & Avezedo, 2006). A CBLE requires the student user to take on more responsibility for their learning, and thus, student use of SRL strategies become

increasingly necessary for achievement (Zimmerman & Moylan, 2009). To ensure success, students at risk of dropping out require face-to-face academic, behavioral, and cognitive support from their teachers (Barnett, 2016; Barr & Parrett, 2001; Fryer & Bovee, 2016).

A well-documented correlation was found between academic achievement and SRL (Zimmerman, 2002). Zimmerman also identified evidence to support the notion of low-achieving students possessing limited SRL skills or using SRL strategies ineffectively. Research from Fryer and Bovee (2016) showed low-achieving students benefited from self-paced individualized instruction facilitated by a teacher. When the teacher facilitated rather than directed learning, students developed a sense of autonomy and feelings of competence (Barr & Parrett, 2001; Brophy, 2010; Schunk, 2008). Purposeful and supportive academic feedback from teachers also encouraged the development of a relationship with the students, which increased motivation and a sense of belonging (Edgar-Smith & Palmer, 2015).

Low-achieving students benefit from mastery-based or competency-based approaches to learning (Barnett, 2016; Brophy, 2010; Tomasello & Brand, 2016; Watson et al., 2011). CAI made individualized instructional and competency-based learning possible. Students understood the learning goals and demonstrated their knowledge at their own pace and time. Credit-deficient students accelerated their learning and earned credits in CBLEs (Barnett, 2016; Barr & Parrett, 2001; Brophy, 2010; Schunk, 2008). A well-designed CBLE influenced student motivation and efficacy by removing the fear of

failure (Barr & Parrett, 2001; Brophy, 2010, Watson et al., 2011). Barr and Parrett (2001) emphasized the importance of the organization of the learning and its potential influence on student success. More specifically, "students develop more positive attitudes toward staff, school, and learning, and they can achieve high academic standards" (Barr & Parrett, 2001, p. 85).

Cleary and Zimmerman (2012) described SRL as self-directed behaviors occurring before, during, and after learning that manifested cyclically and repetitively. When examining teaching and learning in an educational setting, Cleary and Zimmerman (2012) stressed the importance of an integrated approach to analyzing "self-regulation, engagement, and motivation" as these "constructs are highly related and complementary" (p. 238). Furthermore, methodologies that examined SRL instruction in a real-world environment were rare (Dignath & Büttner, 2008; Kistner et al., 2010). My study examined the unique features of the CBLE in an alternative program to identify how SRL was taught and supported by the interplay of the student-to-content and student-to-teacher interactions (Abrami et al., 2011; Bernard et al., 2009; Bol & Garner, 2011; Dignath & Büttner, 2008).

Social Cognitive Theory

The social cognitive theory explains much of what researchers understand about classroom learning. Bandura (2001) defined social cognitive theory as a framework from which to describe how the environment influences one's attributes such as affect,

cognition, and behavior. Bandura (2001) described the interaction as triadic reciprocality. Figure 3 depicts Bandura's causal model of the social cognitive theory.

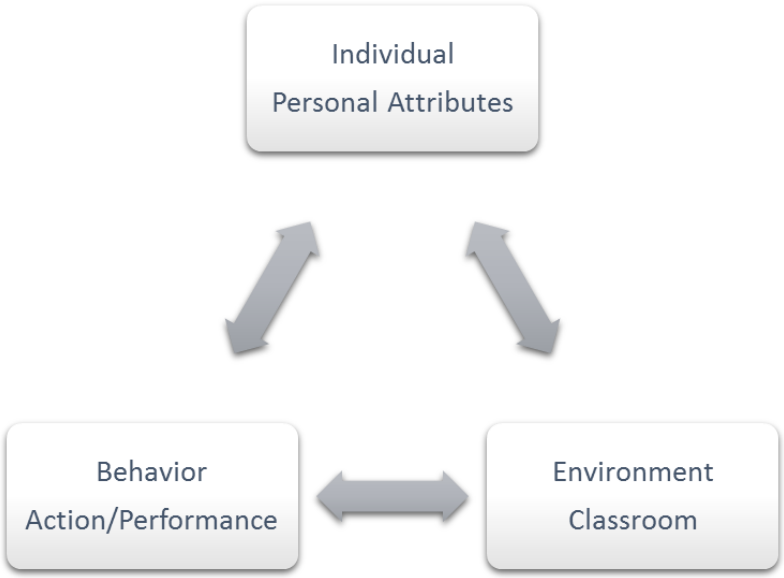


Figure 3. Causal model of the social cognitive theory (Bandura, 2001).

From the perspective of an educator, the interactions depicted in Bandura's model are monumentally important. According to the state department of education (2017), the average K–12 class size was 19 students per classroom. With respect to Bandura's triad, the teacher was responsible for creating the optimal classroom environment for all 19 students; each individual student had feelings about their personal attributes, good or bad. These feelings guide the way individual students behaved within the classroom. From the work of Bandura, educational researchers can describe the existence of a complex relationship as a factor influencing student motivation, engagement, self-efficacy, and self-regulation.

Zimmerman's framework linked SRL to self-efficacy as the motivational component that influenced and drove students to enact SRL skills and strategies (Schunk & Usher, 2011). His framework also described self-regulation as a process of learning that occurs when students focus their thoughts, behaviors, and actions toward the attainment of learning goals (Schunk & Usher, 2011; Zimmerman, 2002). The work of Bandura, Cleary, Schunk, and Zimmerman indicated self-efficacy influenced the SRL phase of performance because students who believed in their abilities used strategies during learning. In an academic setting, teachers used the term engagement to describe the outward expression of motivation.

Student motivation influenced the forethought phase of SRL and involved observable behaviors related to goal setting and strategic planning (Casillas et al., 2012). Bandura (2001) defined social cognitive theory as a framework by which to examine how the environment influenced one's personal attributes such as affect, cognition, and behavior. Engaged students displayed observable behaviors related to setting goals, attending to tasks, and following school expectations (Bandura, 2001).

Teachers played a significant role in the way students function within the learning environment. A 2015 study of one alternative education program supported Bandura's work. The work of Edgar-Smith and Palmer used the Classroom Environment Scale – Resource (CES-R) instrument to measure perceptions of the classroom environment. Students completed the CES-R at time of intake in the alternative program, then at 4 months, and again after 8 months of being enrolled in the alternative program. As the

duration of enrollment increased, study results showed students developed a positive perception of the alternative program as compared to their traditional school. Edgar-Smith and Palmer also identified a significant correlation between the school environment and academic achievement. More specifically, results revealed students with a strong sense of belonging had fewer issues with discipline. These students were more actively engaged in learning and earned higher grades during their enrollment. Edgar-Smith and Palmer (2015) believed that "students bring with them old assumptions … negative experiences … school failure and troubled relationships with teachers" (p. 139). Edgar-Smith and Palmer (2015) asserted that negative school feelings are malleable with positive student-teacher relationships that foster a sense of belonging.

Self-Determination

Self-determination, also known as motivation, can be defined as possessing the inner desire to act or pursue something of interest or value. Motivation and SRL played an intricate role in academic success (Cleary & Zimmerman, 2012; Zimmerman, 2002; Zimmerman & Schunk, 2011; Zimmerman, Schunk, & DiBendedetto, 2017). Self-determination represented a student's will, while SRL represented his or her skill. Both self-determination and SRL must be deployed to control cognition, behavior, and metacognition in an academic setting (Cleary & Zimmerman, 2012; Schunk, 2008). Motivated students regulated and focused their efforts on accomplishing their learning goals (Cleary & Zimmerman, 2012; Eisenman, 2007; Zimmerman & Schunk, 2011;

Zimmerman et al., 2017). Self-determined students completed high school, thus increasing their opportunities for success during adulthood (Eisenman, 2007).

The theory of self-determination was broken down into three categories: intrinsic motivation, extrinsic motivation, and a-motivation (Legault, Green-Demers, & Pelletier, 2006; Ryan & Deci, 2006). Intrinsic motivation, action toward extending and challenging one's ability, was closely related to self-efficacy (Ryan & Deci, 2000). Intrinsically motivated students were interested in learning, believed in their learning ability, and found learning useful or purposeful. Extrinsic motivation, also referred to as external regulation, was a function of performance. Extrinsically motivated students found motivation in the task, whether the outcome was positive or negative.

External regulation had three processes, which ultimately described the source of student motivation: introjected, identified, and integrated (Ryan & Deci, 2000). A student who exercised introjected regulation did not take ownership of the task. Instead, the student completed the task to avoid a negatively perceived consequence (i.e., embarrassment, low grades, loss of credit, after-school detention). A student who exercised identified regulation consciously found value in and took ownership of the task; however, the student required reinforcements such as praise or rewards to engage in task completion (Ryan & Deci, 2000). Integrated regulation described a student who initiated and acted toward task completion. These students also connected their actions and efforts directly to their personal goals and values.

The third category of the self-determination theory was a-motivation. Students described as amotivated lacked the drive to initiate or accomplish learning goals (Ryan & Deci, 2000). At times, teachers misinterpreted a student's signs of inactivity, boredom, and disruptive behaviors as motivational issues. Moreover, students at risk of dropping out struggled academically for many reasons, such as poor reading skills, limited background knowledge, and repeated school failures (Bowers, 2010). Frequently, struggling students who no longer believed in their academic ability never connected the importance of self-attributes to success (Schunk, 2008). Reeve, Ryan, Deci, and Jang (2008) suggested that all students possess the inner determination to learn and achieve and stated, "all students, regardless of their starting point, backgrounds, or abilities, possess inner motivational resources that can potentially allow them to engage constructively and proactively in learning activities" (p. 228). The social environment influenced inner motivation. Over time, environmental influences may or may not have supported or encouraged motivation and regulation.

Researchers agreed that students thrive in learning environments in which they were taught and encouraged to act with competence, autonomy, and a sense of community (Ryan & Deci, 2000; Edgar-Smith & Palmer, 2015). More importantly, motivation and SRL worked in tandem in supportive learning environments (Reeve et al., 2008; Zimmerman et al., 2017). Students exercised internal motivation or integrated regulation for learning and used SRL habits as tools or strategies. As the students experienced success, they were motivated to use SRL strategies, which became automatic

and transferable to other situations (Reeve et al., 2008; Ryan & Deci, 2000; Zimmerman & Schunk, 2011; Zimmerman et al., 2017).

The influence of the learning environment was confirmed in a longitudinal study of 4,660 middle school students (Casillas et al., 2012). Researchers used two assessment tools: one measuring academic achievement (EXPLORE) and the other measuring motivation, self-control, and self-regulation (ENGAGE). Researchers also examined other data related to attendance, teacher-assigned grades, retention, family educational beliefs, and personal behavior management. Casillas et al. (2012) found academic achievement was the strongest predictor of at-risk tendencies, while psychosocial factors associated with self-regulation also were significant predictors of learning difficulties.

Vallerand, Fortier, and Guay (1997) explored the relationship between motivation and social context in the formation of a model to identify perceptions of high school dropouts. The 19-year-old longitudinal study represented seminal work in the theory of self-determination and defined the role adults played in creating an environment in which students were motivated to learn. The study remained significant (being cited 1,516 times) and thus was included in my study.

The researchers surveyed 4,537 9th- and 10th-grade students about their perceptions of support from parents, teachers, and administrators, as well as educational mediators of self-determination (Vallerand et al., 1997). A factor analysis identified three unique characteristics of high school dropouts as compared to self-determined or persistent students. High school dropouts reported lower levels of intrinsic and extrinsic

motivation, and they conveyed higher levels of a-motivation. These students also believed that they were less competent and less able to work independently on school activities. Additionally, dropouts perceived that parents, teachers, and administrators were less supportive and more controlling of their behaviors than persistent students (Vallerand et al., 1997).

Legault et al. (2006) conducted a three-part investigation in which a-motivation was explored to validate academic engagement in a high school setting. According to the researchers, a-motivation described behaviors associated with high school dropouts or struggling learners. These students exhibited maladaptive behaviors toward school achievement (Legault et al., 2006). Additionally, disengaged students exhibited observable behaviors of frustration, nonattendance, nonperformance, and academic failure. Researchers found that students at risk of dropping out expressed a deficiency of motivation in one or more of their academic beliefs, which were closely related to perceived ability, effort, the value of the task, and the type of task at hand (Legault et al., 2006). Upon further investigation, Legault et al. (2006) found that a-motivation stems from the inability to act or desire to complete a task. In some cases, struggling students did not believe in their ability to complete a task (e.g., homework), did not believe they could initiate or sustain the effort needed for task completion, did not see value in learning the task, and were uninterested in the task. Researchers also examined how the social environment influenced an amotivated student. Legault et al. (2006) and Vallerand et al. (1997) obtained results supporting the idea that educators can influence self-

determination and SRL. However, both studies found statistical evidence that parents have more influence over academic a-motivation than peers, teachers, and administrators.

Fryer and Bovee (2016) carried out a longitudinal study of student motivation in a CBLE in which researchers examined the role teachers played in supporting student motivation. In this study, 975 first-year undergraduates completed a survey to assess motivation over time in an e-learning setting. Fryer and Bovee (2016) used three belief constructs: effort, task value, and ability to describe motivation. To assess student engagement during learning, researchers used vocabulary review assignments that were spaced evenly throughout the 20-week course (Fryers & Bovee, 2016).

Students completed the vocabulary assessment followed by two motivational surveys to examine the effects of teacher support, student beliefs, and prior experience in a CBLE on student achievement. The researchers conducted a descriptive analysis of the motivation survey and calculated the effect size for each construct of student belief and prior experience. Fryer and Bovee (2016) found learners who had knowledge or skill deficits were less likely to sustain motivational effort over time. The sustained effort by students correlated to the value of learning. Additionally, students with skill deficits lacked the academic tenacity to persist and found difficulty in task completion (Fryer & Bovee, 2016). The researchers indicated that CBLEs where students and teachers collaborated face to face provided better motivational support than a course strictly online. Teachers who intentionally discussed the relevance of the course assignments positively influenced student motivation and engagement. Teachers were found to

influence student motivation by holding students accountable for performance expectations (Fryer & Bovee, 2016).

Student Engagement

Motivation is described as unobservable and explains why people put forth the energy to achieve a personal goal (Skinner & Pitzer, 2012). Conversely, engagement is described as the outward expression of student motivation. Researchers have studied engagement on four levels. The most superficial engagements were studies conducted within social settings, such as in churches, schools, families, and youth organizations. On the broadest level, student engagement studies examined motivation within an individual classroom or a learning activity (Skinner & Pitzer, 2012). Motivational theorists have identified the relationship between motivation and school organization. More specifically, the learning environment mediated motivation, engagement, and regulation (Casillas et al., 2012; Legault et al., 2006; Reeve et al., 2008; Ryan & Deci, 2000).

Students who are engaged in learning exhibit observable behaviors, such as taking notes, using a mouse to help them read a passage, and solving a mathematical problem. The degree to which a student attended to daily learning tasks was critical for mastery, whether the task was a homework assignment or an online assessment. Engagement was important in school over time because engaged students were more likely to complete high school, whereas disengaged students left school before graduation (Reschly & Christenson, 2012; Finn & Zimmer, 2012). Other conditions or factors decreased engagement and increased the risk for students to leave high school before graduation,

but these factors were not considered predictive (Finn & Zimmer, 2012). High-risk students from common socioeconomic conditions (race, ethnicity, income level, and family structure) had decreased readiness for school at an early age (Reschly & Christenson, 2012). Regarding the daily learning tasks, these factors could not be controlled by the classroom teacher or building principal; therefore, these conditions were not the focus of this discussion.

A student's engagement in school was important because these behaviors are key to daily classroom performance and long-term academic success (Finn & Zimmer, 2012). During the 1980s, researchers began to examine student engagement to identify and develop strategies to prevent student boredom, alienation, and dropout (Finn & Zimmer, 2012). Early researchers described student engagement from an organizational viewpoint and recommended schools promote engagement through small class sizes, clear educational goals, collaborative relationships between students and teachers, and authentic classroom activities (Finn & Zimmer, 2012). Moreover, researchers such as Connell, Skinner, and Wellborn viewed school engagement from a self-system perspective (Finn & Zimmer, 2012; Reschly & Christianson, 2012). The self-system model described engagement as the basic needs of students to feel competent, autonomous, and connected. Schools supporting these basic needs increased student engagement (Finn & Zimmer, 2012).

Finn (1989) proposed a new model for school engagement—the participation-identification model—which linked student behavior to a social environment. Student

behavior indicated participation and environment were related to their identification with the school or classroom. Student engagement increased when the learning environment or school culture encouraged a student's sense of competence, autonomy, and belonging. More specifically, student behaviors associated with school success were observable when the learning environment supported their basic needs and sense of belonging.

Engaged students actively participated in classroom learning activities. Administrators and teachers measured student engagement through observable behaviors, such as completion of in-class and out-of-class assignments, use of metacognitive strategies, regular attendance, and willingness to comply with school and classroom expectations (Finn & Zimmer, 2012). Student engagement behaviors were easily observed and adapted. Additionally, observable behaviors related to achievement and participation were predictors of whether a student completed high school. Finn (1989) described student engagement as a process that develops over time. Engaged students participated in learning activities. With effective instruction, students demonstrated positive learning outcomes. In addition, specific academic feedback from a supportive teacher encouraged students to develop a sense of connectedness to the classroom.

Within the participation-identification model, Finn (1989) also described disengagement as a process. Students showed evidence of disengagement when there was a lack of feeling of belongingness or competence. Disengagement behaviors included nonparticipation, academic failure, and nonidentification with the learning environment. Disengagement did not occur overnight; it was a process that occurred over time. Non-

participatory behaviors manifested in the form of physical withdrawal, such as failure to complete an assigned task, nonparticipation in group activities, and truancy. Students who had many absences were likely to have gaps in their academic knowledge that led to academic failure and feelings of self-doubt. To hide their insecurities, these students demonstrated disruptive behavior and began to withdraw emotionally from the classroom. Additionally, the student's relationship with the teacher or administrator became combative, thus decreasing the student's sense of belonging at school. Every student had a difficult school experience, which also hindered the process of school engagement. Moreover, one problematic school year had a detrimental impact on students' academic future (Finn & Zimmer, 2012).

The work of Finn and Zimmer, and Reschly and Christianson expanded the participation-identification model into four indicators: academic, behavioral, cognitive, and affective (Finn & Zimmer, 2012; Reschly & Christianson, 2012). In this model, the academic and behavioral indicators were observable in classrooms while cognitive and affective indicators were unobservable. Unobservable behaviors were closely related to motivation in that they represented why students participated in the educational process. Students initiated metacognitive behaviors or strategies during the learning process. Engaged students set learning goals, asked questions, worked through frustrations, and took notes, which were examples of SRL (Finn & Zimmer, 2012; Reschly & Christianson, 2012; Zimmerman, 2002). Affective behaviors were related to emotions and efficacy. Students who felt competent and able to work independently in the learning

environment exhibited participatory behaviors. Students were willing to work hard for their teachers even when the assignment did not align with their inner motivation resources. Observable indicators of engagement within newer models were academic and behavioral (Finn & Zimmer, 2012; Reschly & Christianson, 2012). Students who were engaged academically participated in classroom activities and completed their homework. Behaviorally, engaged students had collaborative relationships with peers and teachers, complied with school rules and expectations, and participated fully in the school environment (Finn & Zimmer, 2012).

Wang and Holcombe (2010) conducted a short-term longitudinal study of 1,046 students that linked school engagement and student achievement with the student perception of the school's culture and climate. Students were assessed with the same questionnaire six times from seventh grade to after high school graduation. School disengagement often increased between Grades 7 and 8 (Casillas et al., 2012). Wang and Holcombe (2010) showed that students' perceptions of the learning environment either enhanced or detracted from academic achievement and engagement. More specifically, students who perceived support from school staff in the context of their ability to accomplish learning goals and to act independently within the learning environment showed higher levels of school engagement. In contrast, students who believed staff doubted their ability and controlled their actions within the learning environment showed lower levels of school engagement (Wang & Holcombe, 2010). The researchers' results

demonstrated that students flourish psychologically, behaviorally, and academically in a supportive learning environment.

The work of Shernoff et al. (2016) measured student engagement by exploring the relationship of the learning experience and quality of the learning environment. Environmental complexity studies measured engagement by observing how students responded to the academic challenges and how the environments supported student agency (Shernoff et al., 2016). The study's methodology randomly collected students' experience data in seven high school classrooms. When prompted, students rated their engagement level, provided their perception of classroom activity, and commented on their mood (Shernoff et al., 2016).

Five core content area teachers volunteered to participate in the study. The researchers used two cameras to capture classroom interactions: One camera recorded the actions of the teacher during the lesson, and the other camera captured the student-to-content, student-to- student, and student-to-teacher interactions. Observers reviewed the recordings and analyzed the footage using the observational instrument, Optimal Learning Environments – Observation Log and Assessment (Shernoff et al., 2016). There were 108 students in the classrooms of the five teachers who participated in the study. Students provided researchers with a record of their experience. When prompted by researchers, students recorded the level of their engagement, perceptions of the lesson, and present mood. During the observation, students completed two or three experience records (Shernoff et al., 2016).

The results suggested that student engagement was a balancing act between the challenge of the task and the supportive nature of the classroom. Overall, student engagement was strongly correlated with level of supportiveness. In turn, students developed a positive self-efficacy in their ability to learn. Instruction and the lesson's scaffolding influenced student engagement within an academic challenge. Shernoff et al. (2016) indicated that student engagement increased when teachers provided clear expectations to guide student thinking. Student engagement also increased when teachers offered support when students completed activities designed to develop their knowledge and skill.

Alternative Education

Alternative schools have existed since the 1960s (Barr & Parrett, 2001; Lehr et al., 2009). These schools began under the headings of open enrollment, optional public schools, and schools of choice. Today, alternative schools exist in many forms (contract schools, learning centers, charter schools, and magnet schools) and provide educational opportunities to a diverse group of learners (Barr & Parrett, 2001). Alternative education was defined as any K–12 nontraditional school designed to meet the educational needs of students otherwise unsuccessful in a regular school (Carver et al., 2010; US Department of Education, 2010). Students enrolled in alternative schools usually possess common characteristics related to factors such as socioeconomic status, cultural background, family makeup, and academic deficiencies, which increases the likelihood of school

failure and or lack of completion (Barr & Parrett, 2001; Lehr et al., 2009; Watson et al., 2011).

Common characteristics associated with alternative education and effective school research included a well-defined mission, caring staff, highly structured and safe learning environment, flexible scheduling of classes, and standards-based curriculum. Researchers identified common characteristics across the United States, such as low student-to-teacher ratios, specifications for student eligibility, parent involvement, and use of individual learning plans for students (Lehr et al., 2009; Smith & Thomas, 2014).

In the United States, 86% of alternative schools and programs used established criteria for students' enrollment (Lehr et al., 2009; Smith & Thomas, 2014). In the Midwest State, alternative education programs-based enrollment criteria on the following: academic failure in the traditional setting, truancy, parenting or pregnant, family need, and behavior (IDOE, 2017; Lehr et al., 2009). Eligible students possessed underlying motivational issues because of years of school failure (Brophy, 2010). These motivational issues took on different forms, such as low achievement due to repeated failure, learner helplessness, lack of commitment, and task avoidance as a defense mechanism.

Students in grades 1-12 exhibit at-risk warning signs as early as third grade, which are commonly observed in reading levels (Bowers, 2010). Middle school was a challenging age for several reasons, thus representing another grade level at which to identify at-risk warning signs. Middle schoolteachers encouraged students to take over

more ownership of their learning. In some cases, middle school students had neither received instruction nor developed adequate study habits required for academic success (Cleary & Zimmerman, 2004; Cleary et al., 2013). Subsequently, these students earned failing grades in English/language arts and mathematics, and they typically had a grade point average of less than 2.0 (Bowers, 2010; Casillas et al., 2012).

The early high school years also represented other grade levels in which a student may exhibit at-risk behaviors. Between Grades 9 and 10, the most common at-risk warning signs were low student attendance rates, teacher-issued grades, and standardized test scores (Casillas et al., 2012; Duckworth & Carlson, 2013). In many cases, struggling students experienced a traumatic life event (e.g., abuse, divorce, loss of a loved one, and neglect), came from single-parent households, had low socioeconomic status, and descended from diverse cultural/ethnic backgrounds (Duckworth & Carlson, 2013). Although outward warning signs were visible, the psychosocial signs were much less evident to principals, teachers, and parents. These signs were related to motivation, self-efficacy, and self-regulation (Casillas et al., 2012; Duckworth & Carlson, 2013).

Alternative schools focused on individualized and personalized learning to support students (Barnett, 2016; Barr & Parrett, 2001). Program developers accomplished this by establishing high expectations for social interaction and academic achievement and implemented school curricula aligned to academic standards. Teachers established high expectations for student learning and growth as well (Lehr et al., 2009; Edgar-Smith & Palmer, 2015; Fryer & Bovee, 2016). Researchers found the design of the learning

environment within alternative schools was essential (Barr & Parrett, 2001; Barnett, 2016). More specifically, students who experienced school failure found success in self-paced learning environments. Researchers noted student success when learning was facilitated rather than directed by teachers. Students learned how to monitor their progress outlined in their individualized learning plans, which became an incentive for learning and task completion (Barr & Parrett, 2001; Edgar-Smith & Palmer, 2015). In a well-designed learning environment, students felt supported, acted autonomously, and experienced enhanced self-confidence (Barr & Parrett, 2001; Reeve et al., 2008; Shernoff et al., 2016).

Competency-Based Education

Competency-based education is an educational reform movement that was first observed in the early 1970s (Spady, 1977) and has grown in popularity in recent years to increase the graduation rate of over-aged or under-credited students (Barnett, 2016; Sturgis & Patrick, 2010). The working definition of competency-based education consists of three components that also identify key principles of the learning environment: identified learning goals and outcomes, student-centered curriculum and assessments, and required student mastery (Barnett, 2016; Sturgis & Patrick, 2010; Tomasello & Brand, 2016). Students who are over-aged or under-credited benefit from competency-based education because the nature of the learning environment takes failure out of the equation. Students who once struggled to keep up with their peers and earned low or

failing grades are now in control of their learning, which increases the likelihood for their success in school (Brophy, 2010).

Competency-based education requires individualization and the use of student-centered data. Thus, computer-based instruction is employed within a learning management system that is based on competency. Teachers facilitate student learning. The use of technology allows for flexible scheduling and course completion instead of a required amount of seat-time. Students complete work according to their own pace and earn grades no lower than the mastery level set by their school or program (Barnett, 2016; Sturgis & Patrick, 2010; Tomasello & Brand, 2016). Students are provided with timely and specific academic feedback. In competency-based education, a great deal of emphasis is placed on the relationship between achievement and effort (Brophy, 2010; Smith & Thomson, 2014). The organization of the learning environment mediates student success by reinforcing their attributes of motivation, efficacy, and SRL increases (Brophy, 2010).

Self-Regulated Learning

Zimmerman's model of SRL is an ideal framework to explore how the learning environment influences SRL because the theory incorporates attributes of self-regulation with self-efficacy and motivation. Moreover, his theory also describes how personal attributes are mediated in the learning environment (Bol & Garner, 2011; Zimmerman, 2002; Zimmerman et al., 2017). Struggling students select a CBLE for a sense of control over their daily interactions with teachers, peers, and the content (Zimmerman et al.,

2017). For this study, I examined student-to-content and student-to-teacher interactions. I described interactions that supported and encouraged setting goals, monitoring progress, and reflection, which are the foundational regulatory processes at the core of Zimmerman's SRL framework.

Zimmerman (2008) described SRL as a three-phase feedback loop mediated by personal and social factors (see Figure 4). Zimmerman stressed that SRL is not linear. Learners freely move into and out of forethought, performance, and evaluation. The way learners cycle through the loop depends on their activity as it relates to the task. Figure 4 depicts Zimmerman's theory of SRL.

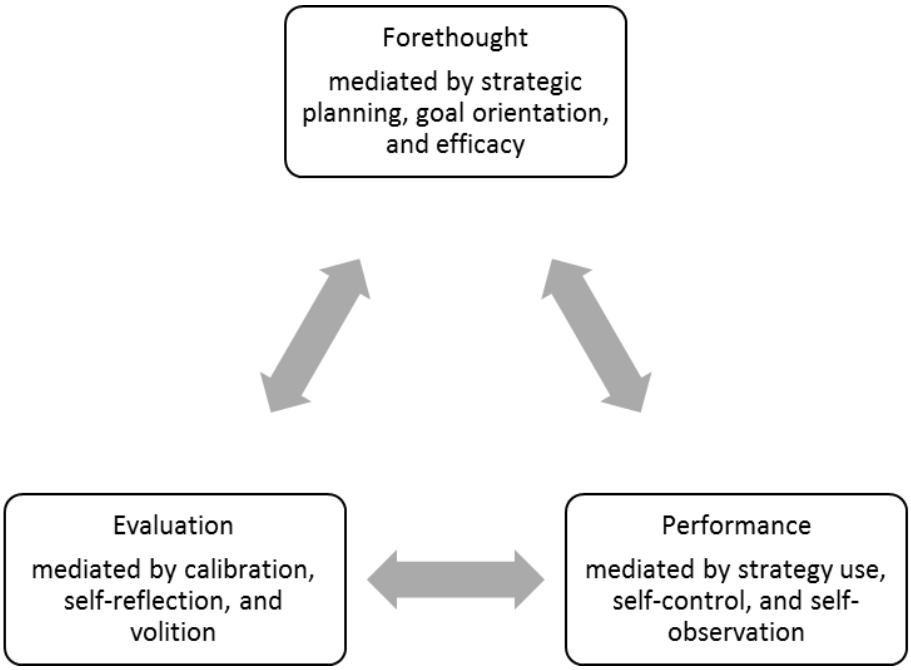


Figure 4. Zimmerman's theory of self-regulated learning. Adapted from "Becoming a Self-Regulated Learner: An Overview," by B. Zimmerman, 2002, *Theory into Practice, 44*, p. 67.

Forethought

Zimmerman provided a concise overview of each phase of SRL in 2002. Forethought begins when students encounter a new learning experience or receive an assignment from their teacher. Students anticipate the steps required for task completion and devise a strategic plan to accomplish the task (Zimmerman, 2002). Student success played a role in forethought. Students who possessed a growth mind-set or were mastery-oriented found value in the task and believed in their ability to accomplish their goal. These students were intrinsically motivated by learning or having perceived value in completing the task. These learners also used prior knowledge and believed in their capabilities. Alternatively, students with a fixed mind-set or were performance-oriented

found value in task completion to maintain a perception of competence. Performance-oriented students fell into other subcategories: those concerned with appearing intelligent and those concerned with avoiding failure (Lichlinger & Kaplan, 2011). These students also used their prior knowledge in the form of past success to guide them through the process, or they established a reason not to attempt an assignment. In other words, these students were externally regulated (Ryan & Deci, 2000).

Performance

Self-control and self-observation mediate the performance phase of SRL (Zimmerman, 2002). Students who enacted SRL strategies demonstrated the following behaviors associated with performance: using specific learning strategies, identifying steps within a task, managing their time, organizing their environment to prevent distractions, controlling their thoughts and behaviors aligned with school expectations, and seeking help from an expert (e.g. other peers or teachers). Students who demonstrated these types of behaviors were usually mastery-oriented or compliant performance-oriented students. Conversely, students who struggled to perform developed self-handicapping tendencies, did not take ownership of the task, and avoided failure (Lichlinger & Kaplan, 2011; Zimmerman, 2002, 2008).

Evaluation

The third phase of the SRL feedback loop is evaluation (Zimmerman, 2002). Evaluation, also known as self-reflection, is mediated by self-judgment and self-reaction. The phase begins when a student compares his or her work to a standard. This standard

relates to his or her past performance, an assessment or rubric, or work from another peer (Zimmerman, 2002). Teachers who reinforced self-worth noted gains and continued student motivation. Conversely, teachers who did not reinforce self-worth noted student disengagement from participation. Zimmerman (2002) stressed the importance of a student's personal attributes in the evaluation phase as follows: calibration (ability to accurately assess performance), satisfaction (related to a sense of fulfillment), and persistence (ability to attend to a task in challenging situations). The combined effect of these attributes on a learner either increased achievement or hindered progress. A negative personal evaluation led to self-handicapping behaviors such as procrastination, avoidance, and disengagement (Zimmerman, 2002).

Instruction and Self-Regulated Learning

McClelland et al. (2010) described SRL as a lifelong learning skill that develops gradually as an individual matures. Researchers have noted students spend many formative years in a K–12 classroom. It was here that students were introduced to SRL strategies through their teachers (Kistner et al., 2010; Zimmerman & Moylan, 2009). Teachers provided SRL instruction directly and indirectly. Teachers who provided implicit instruction when they demonstrated how an SRL strategy was used, shared their thoughts through instruction. Conversely, teachers who provided explicit instruction did so by naming the SRL strategy, describing why the strategy worked, and modeling the use of the strategy (Kistner et al., 2010). Students implemented effective SLR strategy use through regular practice. Despite this knowledge, authentic studies conducted in an

actual classroom with real-time teaching and learning rarely occurred (Kistner et al., 2010).

Spruce and Bol (2015) conducted a study of SRL instruction using Zimmerman's theory as the theoretical framework. The study examined how teacher beliefs and teacher knowledge of SRL helped to form their instructional practices. Initially, 84 elementary and middle schoolteachers completed the Self-Regulated Teacher Belief Scale questionnaire. Spruce and Bol (2015) extended an invitation for volunteers for a classroom observation and interview; 20 teachers volunteered to participate. The results of the questionnaire showed that teachers held positive beliefs regarding the usefulness of SRL; however, teachers also had doubts regarding students' readiness to implement practices. For teachers who did not have a deep understanding of SRL, there was little observational evidence of instruction (Spruce & Bol, 2013). The results of the study showed that teachers provided implicit instruction during the performance phase of SRL, but they lacked instructional strategies to support forethought and evaluation (Spruce & Bol, 2013).

Teachers indicated that students who proactively regulated their learning were high-achieving and demonstrated more advanced academic performance than did low-achieving students (Zimmerman, 2002). Kistner et al. (2010) found measurable learning outcomes increased when receiving instruction or training on SRL strategy implementation. Researchers triangulated teacher observational code data and student achievement scores. Kitsner et al. (2010) found that student performance increased with

explicit instruction. Researchers also noted that student performance was the highest when the teachers provided explicit instruction; notably, teachers rarely provided explicit instruction (Bannert & Reimann, 2012; Kostons et al., 2012).

Dignath and Büttner (2008) conducted a study of SRL instruction in primary and secondary classrooms. Researchers analyzed 357 effect sizes in a meta-analysis of 49 primary education studies and 35 secondary education studies. As it related to this study, the results of the meta-analysis for secondary studies were important. The effect size of SRL instruction treatment was significant and at the highest when the following conditions were applied (Dignath & Büttner, 2008):

- Teachers taught a reading or writing strategy.
- Teachers taught a metacognitive strategy.
- Motivational strategies were effective if taught through a metacognitive strategy rather than a cognitive strategy.
- Effect size increased with frequent instruction and student practice.

Dignath and Büttner (2008) also noted that the effect size of instruction was dependent upon the teacher. The effect size was more significant in settings where the researcher, rather than the classroom teacher, provided instruction. This phenomenon explained that the researcher is aware of the importance of explicit SRL instruction and engaged in more purposeful instructional (i.e., identified the strategy, described strategy use, and modeled how to use the strategy) behaviors than the classroom teacher.

The findings of the meta-analysis reinforced the need for SRL instruction as students receiving instruction on SRL strategy demonstrated improved learning outcomes. However, there were limitations with the meta-analysis. Dignath and Büttner (2008) identified three limitations of their work: (a) the researchers excluded articles that were not peer-reviewed, (b) meta-analysis assigned equal weight to effect size regardless of the research methodology, and (c) researchers excluded studies that employed the use of computers in teaching an SRL strategy to students due to the complex nature of the learning environment (Dignath & Büttner, 2008).

Self-Regulated Learning in a Computer-Based Learning Environment

CBLEs have become more popular in education (Kramarski, 2013). These technology-rich environments were useful in supporting students with different learning styles (Greene et al., 2011; Kramarski, 2013; Lajoie & Azevedo, 2006). CBLEs incorporated a single learning activity or a variety of learning opportunities deployed via multimedia (i.e., audio and visual representations), hypertext (i.e., text connected to a link that directs the learner to additional information), and hypermedia (i.e., drag and drop, animation, and written response). The purpose of the CBLE was to deliver instructional content using technology that supported the learning objectives of an individual lesson or course (Lajoie & Azevedo, 2006).

A CBLE required self-direction and active engagement on the part of the student. As students took over the responsibility for their learning, self-regulation became critical for achievement (Lichtinger & Kaplan, 2011; Schunk & Zimmerman, 2012). The CBLE

presented the learner with three distinct challenges (Greene et al., 2011). First, content arrangement was complex. Hypertext and hypermedia produced layering, in effect creating nonlinear navigation of the content. Students had control over multimedia tools, and they understood how to navigate the nonlinear environment and operate the embedded scaffolding tools. Second, time management was another challenge. Students controlled the pace of the course. The content was presented through interactive text, audio files, or visual animations. Students determined which content format best suited their learning style and consequently paced themselves through the material promptly. Third, all students required assistance when learning new content; therefore, help seeking was another CBLE challenge (Greene et al., 2011). Advancements in technology allowed instructional designers to embed computerized supports within the CBLE. Adaptive supports in the form of a human tutor were also available in online and blended courses. In either case, help seeking was dependent upon the student. Some learners solicited assistance from the computer or tutors, while other learners did not seek assistance.

Instructional designers built content for CBLEs around three interactions: student-to- student, student-to- content, and student-to-teacher (Abrami et al., 2011; Bernard et al., 2009; Bol & Garner, 2011). These interactions were found to have a significant impact on student learning and course completion. In a meta-analysis of online and blended courses, Bernard et al. (2009) examined how teachers organized the learning environment to encourage learner behaviors, such as motivation, interest, and self-direction, in the context of the interactions mentioned above. The researchers found a

linear relationship between effect size of the interaction (e.g., student-to-student, student-to-content, and student-to-teacher) and student achievement as it related to the learning environment. More specifically, researchers found learning environments that encouraged strong student-to- student interactions produced the greatest effect size (.49) on achievement. Learning environments organized around in-depth student-to-content and student-to-teacher interactions produced effect size results of .46 and .38, respectively (Abrami et al., 2011).

Additionally, Bernard et al. (2009) found there was little difference in the effect sizes of the three types of interactions within asynchronous, synchronous, or combination courses. Here again, student achievement increased within learning environments where the organization among peers, content, and teachers was strong (Abrami et al., 2011). Finally, Bernard et al. (2009) noted student behavior associated with self-regulation, efficacy, engagement, and achievement increased in well-organized learning environments (Abrami et al., 2011; Bol & Garner, 2011).

Computerized Scaffolding

Zheng (2016) conducted a meta-analysis of SRL studies in a CBLE from 2004 to 2015 to determine whether SRL scaffolds positively influence academic performance. The meta-analysis included 29 peer-reviewed articles. The analysis pooled 2,648 student participants; 1,444 undergraduates, 608 high school students, and 598 elementary students. Zheng (2016) found that both metacognitive and strategic scaffolds significantly influenced academic achievement. Generic SRL prompts coupled with feedback

increased content understanding. The researcher identified four research studies published in the years 2015, 2014, 2012, and 2011 and three peer-reviewed articles from 2009 (Zheng, 2016). Although the articles were more than 5 years old, the studies remained relevant because they represent inaugural work in the study of SRL in a CBLE.

In these studies, instructional designers used many forms of scaffolding such as graphics, read aloud functionality, reminder prompts, and academic feedback. Zheng (2016) identified four types of SRL instructional scaffolds: conceptual (provide guidance), metacognitive (facilitate problem-solving), procedural (propose how-to strategies), and strategic (suggest alternative pathways). The scaffolds were used for instruction and to assist students while engaged in challenging learning tasks (Duffy & Azevedo, 2015). Zheng (2016) identified SRL scaffolds that positively influenced student achievement in a CBLE. Through effect size, the meta-analysis showed "a web-based learning environment is optimal for supporting SRL" (Zheng, 2016, p. 197). The most effective SRL scaffolds supported the three phases of SRL of "setting goals, making plans, and enacting strategies, to adapting metacognition" (Zheng, 2016, p. 197).

The work of Duffy and Azevedo (2015) examined the relationship between the use of instructional scaffolds to support cognitive and metacognitive processes in a CBLE. Students who used the embedded scaffolding developed SRL skills associated with the performance phase. Likewise, when students used the embedded scaffolds, they are more likely to select the appropriate content that matched the lesson (Duffy & Azevedo, 2015. Students who used metacognitive scaffolds to activate prior knowledge

identified relevant content and accomplished learning goals (Bannert, Sonnenberg, Mengelkamp, & Pieger, 2015; Duffy & Azevedo; Moos, 2014).

Additionally, students demonstrated higher levels of self-efficacy, which drives motivation and enacts SRL habits. Metacognitive prompts encouraged students to think about their learning. Engaging in self-questioning about the learning task positively influenced how these students navigated the computer-based curriculum. In other words, these students spent more time interacting with content that support learning associated with the learning goal (Bannert et al., 2015). Earlier research discussed scaffolding based on the way support was delivered to the learner (Clarebout & Elen, 2004; Clarebout, Horz, Schnotz, & Elen, 2010; Greene et al., 2011). The learning management system delivered scaffolding by way of embedded and nonembedded supports (Clarebout & Elen, 2004; Clarebout et al., 2010; Greene et al., 2011). Learners cannot control the embedded supports delivered by the technology (Clarebout & Elen, 2004; Clarebout et al., 2010). Learners encountered embedded supports when feedback was delivered at the end of an activity. Clarebout et al. (2010) defined the nonembedded support as a tool found within the CBLE whose use depended on the student. An example of a nonembedded support was a hyperlink to vocabulary terms or additional information. Both types of scaffolding appeared in the Apex Learning curriculum, which identified embedded scaffolds as strategic and nonembedded scaffolds as adaptive (Hierbert et al., 2009).

Embedded and nonembedded supports were designed to enhance the student-to-content interaction. Studies conducted within CBLE ascertained that a student's goal-orientation, prior knowledge, metacognitive awareness, and ability to monitor progress dictated the use of nonembedded supports (Azevedo & Witherspoon, 2009; Bol & Garner, 2011; Green et al., 2011). In addition, students chose whether to use the support, revealing that students who did not use the support lacked the motivation to learn or did not recognize the importance of the support.

Adaptive Supports Provided by Teachers

CBLEs are unique in that they provide teaching and learning opportunities to a diverse group of learners, along with the important real-time learning support when students encounter difficulty. The instructional support should be personalized to meet the learning needs of the student (Azevedo, Cromley, Moos, Greene, & Winters, 2011). Alternative programs, as well as other CBLEs, provide adaptive supports through teachers. Azevedo and Witherspoon (2009) suggested teachers should provide adaptive scaffolds that promote SRL, such as helping students activate prior knowledge, encouraging goal setting, and developing problem-solving steps. Instruction emphasized using the embedded and nonembedded supports, as well as help-seeking behaviors. Lastly, adaptive supports caused students to develop self-monitoring and self-evaluating habits (Azevedo & Witherspoon, 2009; Greene et al., 2011).

Summary

The literature review showed that SRL played a critical role in academic performance in CBLEs. Zimmerman (2002) asserted that low-achieving students have not adequately developed regulatory strategies to the same degree as their high-achieving counterparts. In addition to these deficiencies, struggling students had gaps in prior knowledge, vocabulary development, and problem-solving skills (Bowers, 2010). Many struggling students were keenly aware of how they compare academically to their peers, which caused them to have feelings of self-doubt. Student withdrawal was observable in behaviors, such as nonperformance of academic tasks, truancy, and noncompliance with classroom rules (Bowers, 2010; Casillas et al., 2012; Duckworth & Carlson, 2013).

Alternative education settings were designed to meet the academic, behavioral, and social needs of these struggling students. Barr and Parrett (2001) and Barnett (2016) suggested alternative educational setting have the potential to reengage struggling students. These students needed a nurturing environment with a small student-to-teacher ratio and a faculty and staff of caring adults to help them develop connections, competence, and self-direction (Barnett, 2016; Edgar-Smith & Palmer, 2015; Ryan & Deci, 2000; Schunk & Zimmerman, 2012; Shernoff et al., 2016). Moreover, struggling students thrived in learning environments where the instruction was individualized, and learning was facilitated, not directed by a teacher (Barnett, 2016; Barr & Parrett, 2001; Tomasello & Brand, 2016). Many alternative education settings offered students this kind

of learning environment, which was due in part to advances in computer-based and online instruction (Barnett, 2016).

The CBLEs under study were primarily autonomous and self-directed; therefore, students needed to use a variety of well-developed SRL skills (Azevedo et al., 2011; Bol & Garner, 2011) to be successful. Within the CBLEs, there were three ongoing interactions: student-to- student, student-to- content, and student-to-teacher (Abrami et al., 2011). Bol and Garner (2011) contended that SRL is moderated by instruction; hence, curriculum providers incorporate design features to support SRL skills around each interaction.

According to Zimmerman (2002), SRL is complex and cyclical, consisting of three phases: forethought, performance, and evaluation. Students engaged in a classroom activity exhibit observable behavior of SRL before, during, and after learning. Observable behaviors indicative of SRL include goal setting, self-monitoring, using task strategies, seeking help from an expert, judging performance, and organizing their surroundings to minimize distractions (Whipp & Chiarelli, 2004; Zimmerman, 2002; Zimmerman et al., 2017). In many cases, struggling students neither had been taught nor had developed skills associated with SRL (Cleary & Zimmerman, 2004; Zimmerman et al., 2017).

SRL was malleable with explicit instruction and repeated practices (Dignath & Büttner, 2008; Kitsner et al., 2010). A well-designed learning environment offered hope to struggling students. Students who were willing to learn and incorporate SRL strategies

into their academic routine gained confidence in their ability. Their newly acquired volition served as a motivator and drove the SRL cycle (Zimmerman et al., 2017). Teachers played a significant role in the development of student efficacy; there was a balance between challenging class assignments and the perception of the level of support students received from their teacher (Edgar-Smith & Palmer, 2015; Fryer & Bovee, 2016).

The literature review identified gaps that make my research questions important to the field of educational technology. In the United States, 42 states had online and blended learning schools and programs (Watson et al., 2011). Differing factors related to program implementation, delivery of curriculum, financial support, and state legislation requirements, make it difficult to compare, much less measure, the effectiveness of these programs and/or identify optimum conditions for learning (Rice, 2006; Watson et al., 2011). Rice (2006) suggested future studies must examine the relationship between the struggling student and supports found within CBLE.

In Chapter 3, I will describe the research design and methodology I employed to answer the four research questions, including my unique role as a participant observer, sampling strategy, and selection of participants. I also will describe the instrumentation and plans for data collection and analysis, threats to internal and external validity, and ethical procedures to protect my participants.

Chapter 3: Methodology

The purpose of this qualitative case study is to provide a rich description of how one alternative education program promoted SRL in a unique instructional setting: a CBLE. The alternative program served students at risk of leaving high school before graduation. Within this bounded system, there were multiple units of analysis: seven highly qualified teachers working alongside the students enrolled in the program. I examined two types of interactions within the learning environment: student-to-content (e.g., reading informational text, viewing short video clips, solving practice problems, writing essays or journal entries, and interacting with drag-and-drop activities) and student-to-teacher (e.g., academically focused conversations occurring between the individual students and the teacher). More specifically, I examined how highly qualified teachers influenced students to engage in SRL while interacting with the licensed content.

I conducted a pilot study to develop three researcher-developed online questionnaires, which were completed by five out of the seven highly qualified teachers employed at the alternative education program. I obtained school documents and artifacts and examined them to determine which subprocesses of forethought, performance, and evaluation the highly qualified teachers teach their struggling students. I used these data sources to explore and describe how student-to-teacher interactions influence the student-to-content interactions and promote SRL skills for academic success. The alternative education program used licensed content purchased from Apex Learning. The instructional designers at Apex Learning developed online courses housed within a

learning management system from which students construct new learning by interacting with the content. The amount of human support a student receives is dependent upon the implementation of the licensed content within each alternative education program. The highly qualified teachers in this study provided face-to-face instructional support staff in a computer lab, creating a blended setting. The purpose of the case study is to describe how the teachers working with students in the CBLE promoted SRL forethought, performance, and evaluation. This study answered the following research questions:

RQ1: What SRL habits do alternative schoolteachers perceive were most essential for struggling students to develop when working in a CBLE?

RQ2: In what ways do teachers encourage struggling students to use SRL strategies in a CBLE?

RQ3: How do teachers use student-to-content interactions to promote forethought, performance, and evaluation in a CBLE?

RQ4: How do student-to-teacher interactions promote forethought, performance, and evaluation in a CBLE?

The learning environment consisted of two primary types of interactions: (a) student-to-content and (b) student-to-teacher. Examples of student-to-content interactions included reading informational text, viewing short video clips, solving practice problems, writing essays or journal entries, and interacting with drag-and-drop activities (Abrami et al., 2011; Bol & Garner, 2011). Examples of student-to-teacher interactions included direct and small group instruction, as well as academically-focused conversations

occurring between individual students and the teacher. The study explored how student-to-teacher interactions prompted students to engage in SRL while interacting with the licensed content.

Research Design and Rationale

Students regulated their behaviors, cognition, and metacognition based on the task at hand. Whether in a classroom or computer lab, each learning situation was unique and called for a specific approach and instrumentation. Evidence of SRL was analyzed using two distinct methods: aptitude or event analysis. Aptitude was a construct dependent upon action, context, and personal attributes, such as volition and motivation (Rosen, Glennie, Dalton, Lennon, & Bozick, 2010; Winne, 2010). This aptitude approach often generated quantitative measures to identify specific SRL constructs such as self-report questionnaires and structured interviews.

Questionnaires asked students to make self-assessments of their use of SRL subprocesses such as task analysis, goal orientation, metacognition, and motivation. Student responses drove the structured interview instrumentation. This research design allowed researchers to identify domain, context, and causal constructs to explain SRL variance in terms of gender, grade level, personal characteristics, and knowledge construction. SRL was adaptable and influenced by instruction (Rosen et al., 2010; Winne, 2010). While these studies produced valid and reliable data, these methodologies collected data after the learning task had been completed and relied heavily on the participant's memory and self-assessment. An aptitude approach was an inappropriate

measurement in this study because of the age of the student population within the location of study. Rather, my study measured SRL as an event through an analysis of data collected from teachers working in the site of the study.

Researchers who measured SRL as an event assessed the student before, during, and after learning. This approach produced quantitative and qualitative data using think-aloud protocols, calibration analysis, trace methodologies, rating scales, and observations (Rosen et al., 2010). The researchers observed student behaviors and documents accordingly to create a sequence or assign behaviors to a phase of SRL. Researchers used calibration analysis and rating scales to document the degree to which a student possessed or exhibited an SRL behavior.

Winne (2010) expressed reservations in measuring SRL as an event that triggers a transition from one phase to another by explaining that "researchers cannot access cognitive operations" (p. 270), and event research was conducted in an artificial setting. SRL studies should utilize instrumentation specifically designed for the learning environment (Cleary, 2011). Examples of event assessment techniques included think-aloud protocols and rating scales, which sometimes produced false results. Think-aloud questions inadvertently encouraged self-reflection and threatened the validity of the study. Rating scales asked a parent or teacher to rank how well a student engages in SRL. Moreover, researchers viewed data from rating scales as highly subjective, thus decreasing the validity of the study (Cleary, 2011; Rosen et al., 2010).

The learning environment influenced a student's use of SRL strategies through his or her interactions with content, peers, and teachers (Ambrai et al., 2011; Bol & Garner, 2011; Butler, 2011; Zimmerman, 2002). In a Midwestern state, alternative education programs had unique features from curriculum, location or delivery system, student population, and staff. These unique features demanded a design methodology flexible enough to adapt to the location, yet formal enough to produce valid and reliable results. Case study methodology was ideal because it allowed me, an educational technologist, to bridge research and practice in an authentic setting.

My study explored how teachers promote SRL in an authentic CBLE. Results of my study may lead to improvements in teaching and learning in computer-based alternative programs with students at risk of dropping out of high school. While there are documented case studies in the fields of social sciences and education, this methodology remains underused. Rosen et al. (2010) identified 15 empirical studies conducted from 1997 to 2008 that explored SRL and academic achievement in K–12 educational settings. During the same period of time, only three quantitative SRL studies were conducted in a high school setting and none of those studies employed case study research methodology.

Beginning in the early 1980s, Zimmerman and Pintrich developed self-reporting instruments to measure self-regulation habits of students (Zimmerman, 2008). Some of the most recognized instruments were the Learning and Study Strategies Inventory (LASSI) and the Motivated Strategies for Learning Questionnaire (MSLQ). Both the LASSI and MSLQ are highly reliable and valid instruments used to survey student

participants. Zimmerman (2008) also identified six SRL intervention studies that measure instruction and the organization of the learning environment. Zimmerman used pretest/posttest data, think-aloud protocols, and structured diaries. The instruments were used to gather data to determine causality between teacher instruction and or the organization of the learning environment on student outcomes. These instruments are inappropriate for my case study as I did not seek to collect causal data on student outcomes.

Both quantitative and qualitative research designs have been used to analyze SRL subprocesses. The work of Rosen et al. showed SRL studies relied heavily on self-reports, think-aloud protocols, and classroom interventions (Rosen et al., 2010). These research traditions have one common characteristic: the focus had been on the student and determining the effectiveness, use, presence, or degree to which an SRL skill exists. Many of the at-risk students served in alternative education programs are under the age of 18. Shivayogi (2013) discussed the designation of students under the age of 18 as a vulnerable group in an article published by the National Institutes of Health (NIH). The NIH discouraged the use of vulnerable groups without parent permission and child assent. The NIH discouraged the use of children when other sources of information and data are accessible to the researcher. Therefore, I designed my research questions to examine SRL from the viewpoint of the highly qualified teachers.

Qualitative research design methods were ideal for studies conducted in educational settings (Merriam, 1998; Patton, 2002; Yin, 2014). I considered two

approaches to designing a case study: phenomenology and grounded theory designs. I chose not to conduct a phenomenological study because I did not examine an action, event, or phenomenon (i.e., instructional experiences) that all highly qualified teachers experience when working with struggling students. Rather, I described how highly qualified teachers encourage students to engage in SRL who are at risk of dropping out. A phenomenological approach would be more appropriate if I intended to evaluate a specific instructional technique for critical attributes or to identify specific teacher motives.

Initially, I considered a grounded theory design method. As I developed my research questions, I moved away from grounded theory and moved toward a case study design. A grounded theory research design would be appropriate if I intended to develop a new SRL framework for instruction to be used with students enrolled in a CBLE who are at risk of dropping out of high school. Rather, I intended to provide a rich description of how seven highly qualified teachers influenced students to use SRL skills while engaged in learning in a CBLE. Each highly qualified teacher had his or her own approach to instruction, thus surveying all the teachers within one case will lead to a better understanding of how alternative education teachers influence the use of SRL and academic success (i.e., course completion, credits earned, and graduation).

The purpose of this case study is to describe how the student-to-teacher interactions encouraged struggling students to use SRL skills and strategies while engaged in learning. I assumed that there was a causal relationship between student-to-

teacher and student-to-content interactions. More specifically, the student-to-teacher interactions influenced how the student interacted with the licensed content. Miles, Huberman, and Saldaña (2014) described this as a causal network within the case, and thus I used a deductive approach. I conducted a pilot study of three off-campus highly qualified educators who had experience teaching in a CBLE. These three teachers also had experience supporting students at risk of dropping out with Apex Learning licensed content. I designed three researcher-designed surveys using the results of the pilot study.

With the pilot study results, I created a start list of SRL phrases, Apex Learning activity types, and Apex Learning built-in/opt-in supports categorized by subprocess and behavior associated with each phase of Zimmerman's framework of SRL—forethought, performance, and evaluation. The pilot participants used their experience with Apex Learning to identify specific activity types and built-in/opt-in supports that students are taught to use. The deductive approach helped to maintain external validity by aligning the research questions with a single theory (Yin, 2014). Data gathered was analyzed throughout the study to describe how the student-to-teacher interaction influenced students to use SRL skills and strategies while learning in a CBLE.

The study's intended audience is administrators and teachers who offer original course credit and credit recovery opportunities to students at risk of dropping out of high school. I shared the findings from the study with the teachers from the site, the school board and superintendent of the school district, and the greater alternative education

community. The case study intended to identify strategies that help reengage student learners at risk of dropping out within CBLEs by promoting SRL.

Role of the Researcher

The study took place in a computer-based alternative program serving high school students in the Midwest State. I am the principal of the alternative program; therefore, my role as the researcher was as a participant observer. Balancing the dual roles of the principal and researcher was essential to the design and credibility of the study. Some of my professional duties included observing and evaluating certified and classified staff. These duties placed unintentional pressure on staff to participate in my research study. To neutralize my role, I conducted an anonymous case study, including "recruitment, informed consent, and data collection (e.g., researcher-designed questionnaires) occurred in such a way that no one knew who did and did not participate in the study" (Walden University, 2018). More specifically, I devised a plan that prevented me from connecting the data gathered with three short online surveys and one request for school artifacts.

Personal experience and knowledge of theory ground researchers in their area of expertise (Guest et al., 2013; Hamilton & Corbett-Whittier, 2013). Researchers who acknowledge their beliefs and assumptions before beginning any study produce reliable and valid results and contribute to their field. My role, as a building principal, gave me a unique perspective on the events taking place within the learning environment. I have developed certain assumptions, which could have led to bias or a misinterpretation of data. To diminish the impact of personal bias, I created a pilot study. I surveyed a small

group of off-campus certified teachers and used their responses to develop the questionnaires used in the actual survey.

I designed three short questionnaires and developed anonymous data collection procedures. During data analysis, I documented my steps and thoughts, and I created a folder system within NVivo 11 to house field notes, documents, and survey results, as well as to acknowledge my assumptions throughout the research. I stored all data in a password-secured Dropbox account and a OneDrive account. Both accounts stored password-protected data on the hard drive of my home computer and in the cloud.

Methodology

The sampling of the site was purposeful to ensure the selection of an information-rich case. The sampling strategy helps researcher identify cases leading to a deeper understanding of a phenomenon or context (Patton, 2014; Yin, 2014). SRL is a well-documented theory; however, educators need additional knowledge to bridge the gap between theory and practice in an authentic manner (Butler, 2011). The case selected for my study was a representative case. Yin (2014) defined a representative case as an entity where new learning is the result of analysis of everyday interactions. In other words, the alternative program was likely to "yield insight and in-depth understanding" (p. 230) regarding how SRL supported learning and reengaged students within the computer-based alternative program (Patton, 2002).

There were 212 approved alternative education programs in the Midwest State at the beginning of the 2015–2016 school year. As previously stated, each program is

unique and offers insight into SRL. For my study, I identified one alternative education program that intentionally encouraged students to develop and to use SRL strategies. I identified programs that had an average graduation rate 20% higher than the state average of 53% in 2015–2016. The program documented an increase in the student graduation rate for the past three consecutive school years.

1. The CBLE is blended, and the alternative education program uses Apex Learning, a 2015 Tech Impact Award winner, for the delivery of instruction.
2. The number of highly qualified teachers who worked in the alternative program was seven or more.
3. The program achieved Advancing Excellence in Education (AdvancED) accreditation at the time of the study.

Description of the Case

The state department of education allows school districts to establish alternative education programs. Each program submits an initial application for approval to the alternative education specialist at the state department of education. Programs receiving approval obtain a small state reimbursement for the program's expenditures. All approved programs submit yearly program accountability reports. Approved programs are required to maintain a student-to-teacher ratio of 15:1, identify and monitor two program goals, conduct a yearly student and teacher climate survey, use an individualized service plan for each student, and submit a yearly student outcome report.

The state department of education has established student eligibility requirements for enrollment in an approved program. Only students meeting these eligibility criteria can receive educational services in alternative education programs (Watson et al., 2011). In the study, I identified the case as a state-approved alternative program. The program, established in 2004, is a cooperative consisting of students from five participating public high schools. Each sending school has a predetermined number of student slots used for simultaneous enrolled. The maximum number of students enrolled at any one time was 212; however, new students did enroll after completing their educational requirements (i.e., attaining a certain number of credits or graduating). During the 2015–2016 school year, 318 students enrolled in alternative programs. Table 1 identifies student eligibility by grade level.

Table 1

Student Eligibility by Grade Level

Eligibility	Grade 10	Grade 11	Grade 12
Intends to withdraw	1	6	13
Credit deficient	36	60	90
Pregnant or parenting	1	10	20
Employed	2	11	41
Disruptive	6	4	10

The program used online curriculum purchased from Apex Learning, which the highly qualified teachers use for the majority of the program's curriculum. Drawing from the provider's course catalog, the licensed teachers created a predetermined offering of courses, which they aligned to the State Academic Standards within the school's login

site. Teachers used a competency-based or mastery-based approach to learning; thus, students were required to demonstrate mastery of the content standards at a level of 80% or higher. Teachers expected students to complete offline activities such as note-taking, writing assignments, working practice problems, and performing science experiments. Three adults—a combination of one or two licensed teacher(s) or one or two instructional assistant(s) who held a bachelor's degree—support the students.

The Midwest State requires 40+ credits for a standard diploma. Within the alternative program, teachers encouraged students to earn a minimum of 10 credits per school year to graduate on time. Table 1 shows that most students enrolled in the alternative program were credit deficient. These students earned credits promptly to graduate from high school within 4 or 5 years. The courses students completed were the prescribed courses as outlined in their Individualized Service Plan (ISP). Before enrollment, the sending school counselor completed the students' ISPs. The alternative program teachers expected that students earn a little more than one credit for every month of enrollment or 10 credits per school year. The teachers worked collaboratively with the students to help them accomplish this goal.

In this case study, the alternative program had three computer labs of varying seat sizes: 46, 40, and 26. One teacher, assigned to a specific lab, was responsible for a group of students for one 3-hour session per school day. The school day consisted of two sessions of 3 hours each—one in the morning and one in the afternoon. During each session, teachers and support staff interacted with students and facilitated learning by

sitting beside the student when they encounter difficulty and need assistance completing an activity or answering a question. Additionally, teachers helped the students create a graduation plan, monitor daily progress, and maintain achievement records for all their students.

Population

In this representative case study, I examined multiple units for analysis embedded within the case. I explored how seven highly qualified teachers within the computer-based alternative program (case) encouraged students to use SRL skills and strategies while interacting with the licensed content. The seven highly qualified teachers held a valid state Teaching License in one of the following content areas: biology, chemistry, English/language arts, mathematics, and social studies. Certified teachers had an overall average of 17 years of experience that included an average of 5.6 years of experience in the alternative program. Teachers were responsible for maintaining a quiet learning environment, assigning classes as prescribed by the ISP, monitoring student progress, and providing one-on-one instruction.

The alternative education program employed five instructional assistants who provided additional academic support for students and assisted the certified teachers with monitoring student progress. The instructional assistants had all earned a bachelor's degree in one of these areas: English and literature, environmental science, English education, fine arts, and social work. Instructional assistants had been employed in the alternative education program for an average of 4 years.

The highly qualified teachers represented the ideal participant pool for the study. These potential participants had the educational background to employ instructional techniques needed to support teaching and learning. They also understood basic principles of classroom management and the importance of building relationships with students. Lastly, the highly qualified teacher was the leader in the classroom and therefore held accountable for student achievement. Using the certified teachers as units of analysis enabled me to collect rich data points to bridge the research gap.

I expected a response rate of no less than 60%. Arrangements were made to expand the participant pool to include members of the support staff if less than four of the seven certified teachers volunteered for the study. The instructional assistants participated in the alternative programs' weekly professional development meetings and thus had a working knowledge of the instructional supports teachers used to promote SRL within the learning environment.

The computer-based alternative program staff participated in weekly professional development. The meetings were led by a lead teacher who engaged in action-research while working with the students. The lead teacher used SRL research as the underlying framework of all professional development topics. The teaching staff intentionally promoted SRL while working one-on-one with students who were completing Apex Learning course requirements. The goal of professional development was to demonstrate how to model SRL strategies that lead to an increased incidence of student success as measured by credit earning and graduation rate. Over the past 5 years, the alternative

program saw significant growth in the graduation rate of eligible seniors from 65% in 2010 to 88% in 2015.

A representative or single-case study design was selected over a multiple-case study to help maintain the anonymity of the teachers. Over the course of 4 weeks, data was collected and analyzed to identify generalizations or themes across the entire case (Patton, 2002). This design eliminated the need to organize data by respondent. Moreover, the purpose of my proposal was to identify how the case (the alternative program) encouraged students to engage in SRL, which did not require assigning unique identifiers to the teachers.

Recruitment Strategy

Bylaws and policies of the partnering school district require employees to address certain conditions while researching in his or her school. According to Bylaw 3231, staff members are encouraged to avoid situations in which their interests, activities, and associations may conflict with the interests of the Corporation (I.C. 35-44-2-4(f)). These guidelines require employees to seek written administrative permission to engage in outside activities while carrying out his or her daily duties. Additionally, the superintendent requires staff to provide notice to conduct research or publish work-related material.

Before beginning data collection, I presented my research proposal to the board of education and the superintendent of schools to inform them of the study and to ask for permission to conduct it. The presentation took place during a regularly scheduled public

school board meeting. During the school board meeting, I asked for permission to conduct the study during the superintendent's reports. The following documents were presented to the board and superintendent (see Appendices A – D): Data Use Agreement, Consent Form, Confidentiality Agreement, and Letter of Cooperation for Opt-In Data. The superintendent of schools had the authority to authorize the study by signing off on the documents identified.

To prevent coercion, I sent an email to all potential participants (i.e., the seven highly qualified teachers) providing a brief description of the study and an introduction to the instruments—three researcher-designed online questionnaires and the examination of artifacts and documents. The email explained that the teachers had access to the study's instruments for a 4-week period. I estimated that each questionnaire would take 10–15 minutes to complete. Finally, I described the process used to analyze data for themes using NVivo 11 and that access to data was limited to my committee, the Institutional Review Board (IRB), and me. I stored data in the cloud, Dropbox, and OneDrive and explained that data was stored in my cloud sites for 5 years and then deleted.

Procedures for Confidentiality and Anonymity

The participant email described a folder/envelope system that was used to maintain confidentiality and anonymity (see Appendix E). In addition, the folder/envelop system was used to verify participation percentages. I placed the expanding organizer containing a folder for each teacher in the teachers' workroom. Each folder contained the same information: a paper copy of the informed consent and background information on

SRL. The folders also contained directions for accessing the online informed consent researcher-designed questionnaire, and directions for submitting artifacts and documents. Teachers were instructed to keep these folders in a secure location until the end of the 4-week data collection period.

I sent a second email to the highly qualified teachers after the data-collection window for the questionnaires were closed (see Appendix F) to explain the next steps of data collections. The highly qualified teachers who did not participate in the study were instructed to disregard the email. The highly qualified teachers who participated in the surveys were asked to submit school documents and artifacts. Teachers were asked to place the artifacts in their original folder and to return their entire folder to the expanding organizer by week's end.

Instrumentation

Yin (2014) suggested case study design is ideal when exploring authentic events without the presence of a stimulus or intervention. Furthermore, Yin advised researchers to use a variety of instruments. The credibility of the study increases as one triangulates data from multiple sources of data. The sources of information or data for this study are as follows: a pilot study, secondary data analysis of documents and physical artifacts, and three short online researcher-designed questionnaires.

Well-designed case studies have articulated procedures (Yin, 2014), and following a series of documented procedural steps increases the reliability of the study. Quality studies use three design tactics to maintain validity: construct, internal, and

external (Yin, 2014). I established construct validity using multiple sources of data. I collected the primary sources of data by conducting a pilot study and using the results to develop three short online researcher-designed questionnaires for certified teachers working in the computer-based alternative program as follows:

- Interacting with Apex Learning Content – Part II questionnaire (see Appendix G) to answer RQ1
- Interacting with Apex Learning Content – Part I questionnaire (see Appendix H) to answer RQ3
- Providing Self-Regulated Learning Instruction questionnaire (see Appendix I) to answer RQ2 and RQ4

I used the responses to the open-ended questions and the secondary sources of data submitted by the highly qualified teachers to triangulate the findings.

Pilot Study

The pilot survey helped decrease bias related to the unique nature of my dual role as researcher and principal. I developed my research instruments by collecting preliminary data from highly qualified teachers (Yin, 2014) who had experience using Apex Learning in their classroom and had taught summer school in the alternative education program for 4 weeks in June 2016.

I used the Apex Learning Curriculum Alignment Handbook to create the pilot study questions, which enabled me to confirm essential Apex Learning vocabulary and ultimately increased the accuracy of the information collected during my case study

(Guest et al., 2013; Miles et al., 2014). The pilot study results identified a list of SRL behaviors that students need to develop to achieve positive outcomes and a list of commonly used Apex Learning activity types and built-in/opt-in supports.

Researcher-Designed Online Questionnaire

I used SurveyMonkey to develop and conduct three short anonymous questionnaires to answer my research questions. Within each of the three questionnaires, teachers were given contextual prompts to decrease the likelihood of making an inference to answer the questionnaire. The SurveyMonkey template helps to ensure that the format of the survey does not confuse the respondents, and I used a variety of question types to solicit accurate and relevant information. Copies of the questionnaires are provided in Appendices G, H, and I.

Selecting Secondary Sources of Data

Secondary sources of data, including school documents and artifacts, corroborated the findings from the researcher-designed online questionnaires. Secondary sources of data are described as highly complementary (Yin, 2014, p. 101) to the data, which helped to verify organizational details (e.g., names) and develop inferences that lead to additional research questions or sources of evidence. I used teacher responses from one of the researcher-designed online questionnaires, Providing Self-Regulated Learning Instruction, to direct the search for corroborating documents.

I drafted a second email to the highly qualified teachers working at the alternative education program that served as the site of my case study. The email identified the

Providing Self-Regulated Learning Instruction questionnaire as the instrument used to explore how teachers provide SRL instruction in the classroom. I asked the highly qualified teachers who completed the three researcher-designed online questionnaires to provide instructional tools and student work used to support SRL instruction. Teachers were asked to remove any information that revealed the identity of staff or students and to place at least five—but no more than 10—pieces of evidence in the folder.

As previously mentioned, case study design requires identifiable steps to maintain reliability. To identify the most relevant professional documents and physical artifacts from the highly qualified teachers, I used a four-step method described by Guest et al. (2013):

1. What documents, images, or artifacts produced by the case or subunits of analysis were "conceptually related" to my research question(s)?
2. What public documents, images, or artifacts contained information to inform my research question(s)?
3. How accessible are these sources of data?
4. Choose sampling units (i.e., identified documents, images, or artifacts), coding units (i.e., secondary sources identified for analysis), and code attributes (i.e., constructs of SRL).

Discussion of Pilot Study

The purpose of the pilot study was to identify Apex Learning instructional design features that required students to complete a task. The survey was designed to identify

key phrases used by the pilot study participants. The survey design also allowed me to identify the most common SRL behaviors enacted by students while completing tasks. Lastly, teachers identified the most frequently used instructional practices while interacting with their students. Data collection occurred over a 2-week period in August 2016, and all three pilot participants completed the pre-data collection survey.

Demographic Data of Pilot Participants

A by name search of each pilot participant was conducted on the state Educator License Look Up on the state department of education website to determine that during the time of the pilot study, each participant

- held a valid state Teaching License in one or more content area(s),
- taught outside the alternative education program, which served as the site of the case study,
- worked within the same school district that oversees the alternative education program, and
- had experience with Apex Learning digital curriculum in their own classroom.

Collectively, the three pilot participants had an average of 4 years of teaching experience. Participant 1 had 1 year of teaching experience, held an Elementary/Intermediate Generalist License, and was highly qualified to teach language arts and historical perspectives in Grades 5–12. Participant 2 had 1 year of teaching experience, held an Elementary/Intermediate Generalist License, and was highly

qualified to teach language arts and mathematics in Grades 5–12. Participant 3 had 10 years of teaching experience and held a license to teach mathematics in Grades 5–12.

Summary of Pilot Data

The pilot participants were emailed an outline of the study that included the purpose of data collection and time commitment of the pilot study. A link to the consent agreement and pre-data survey was included in the email (see Appendices J, K, and L). All three off-site participants completed the pre-data collection survey. The pre-data survey consisted of eight questions. One question required the participants to upload a document into SurveyMonkey. Two of the three participants successfully uploaded the Student-to-Content Interaction document. The third participant did not upload the document for reasons unknown. The pilot survey identified activity types that require students to complete a task in Apex Learning, identified built-in/opt-in supports, and identified SRL actions/behaviors that are taught by teachers while interacting with students. Figure 5 shows three questions that appeared in the pilot study questionnaire.

2. Which activity type do students encounter most frequently when completing a lesson? Check ALL that Apply.

Unit/Lesson Overview	Practice	Computer-Scored Test
Study	Quiz	Teacher-Scored Test
Checkup	Journal	Other (please specify)

3. Describe how a student progresses through an Apex Learning lesson or from one activity type to the next activity type. Please include the three activity types, one course material, and one student resource in your description.

4. Using the image, can you identify at least 2, but no more than 3, build-in or opt-in supports that would help students master the lesson's objectives?

Figure 5. Examples of pilot study questions.

Upon reviewing the pilot study data, I developed rules for inclusion/exclusion of items for the researcher-designed surveys. The rules were used to include or exclude activity types, actions/behaviors, and instructional practices, which were based on the number of responses the survey choice received. Key phrases, SRL behaviors, and/or activity types were included when selected by two or three pilot participants, and they were excluded when selected by only one pilot participant. Table 2 identifies the Apex Learning Activities Types to be included or excluded based on the analysis of the pilot study data.

Table 2

Activity Types Included in Researcher-Designed Survey

Apex Learning activity types	Included or excluded
Computer-scored test	Included
Practice	Included
Study	Included
Quiz	Included
Checkup	Excluded
Journal	Excluded
Lesson overview	Excluded
Teacher-scored test	Excluded
Unit overview	Excluded

The pilot study was instrumental in the development of the three short online questionnaires. I created a two-part questionnaire in SurveyMonkey. Participants were asked to select (yes/no) regarding self-regulated behaviors in which they provide instruction. Next, participants were asked to describe the frequency with which that instruction was provided. I used the same rules to include/exclude key phrases of SRL as described above. Participants excluded two SRL behaviors in which instruction is not provided—annotating notes and drawing pictures—thereby leaving 18 SRL actions and behaviors. Table 3 provides the categorical lists of SRL behaviors included in the survey.

Table 3

Self-Regulated Learning Behaviors in Researcher-Designed Questionnaire

Forethought	Activating background knowledge
	Evaluating content to complete a goal
	Goal setting
	Planning
Performance	Attending to a task
	Managing time
	Monitoring strategy use
	Navigating Apex Learning content
	Organizing the learning environment
	Reviewing notes
	Searching the text
	Taking notes
	Using activity types to increase understanding
	Using content resources in the appendix
Evaluation	Developing thinking steps
	Identifying content that is understood or not understood
	Influencing time on task
	Tracking and monitoring progress toward a goal

In the next step of the pilot study analysis, I examined the data associated with the frequency of SRL instruction. There were four actions or behaviors from the pilot study data that did not meet inclusion criteria, and they were only selected by one pilot participant. I decided not to use the data to eliminate the selections because too many behaviors would have been eliminated; therefore, I held the data back for later use. Table 4 summarizes SRL instruction by frequency and behavior.

Table 4

Pilot Study Self-Regulated Learning Behaviors

Frequency of instruction	Instruction of self-regulated learning behaviors	Phase of self-regulated learning
Almost always	Setting goals	Forethought
Considerable amount of instruction	Developing thinking steps	Evaluation
	Reviewing notes	Performance
	Searching the text	Performance
	Taking notes	Performance
	Using activity types to increase understanding	Performance
	Using content resources in the appendix	Performance
Occasional instruction	Activating background knowledge	Forethought
	Identifying content that is understood or not understood	Evaluation
	Influencing time on task	Evaluation
	Tracking and monitoring progress toward a goal	Forethought

Pilot study participants were given screenshots of Apex Learning content, and images of Apex Learning curriculum were embedded in the pilot survey. Participants examined these images and were asked to describe the built-in/opt-in supports that would help students master the Apex Learning content. Participants provided a written response. I exported the summary data out of SurveyMonkey. Using the Apex Learning Curriculum Alignment Handbook and an online scaffolding document published by Apex Learning (Hiebert et al., 2009) as a guide, I developed a list of supports by annotating a summary report downloaded from Survey Monkey. To identify regularly used built-in/opt-in supports, I inserted screenshots of Apex Learning course material. Figure 6 provides an example of the image and questions to appear in the pilot study questionnaire.

Apex Learning has built in other supports to help students master the lesson's objective. These supports or scaffolds are embedded within the structure of the lesson or course navigation.

4. Examine the image in Biology. Can you identify at least 2, but no more than 3, build-in or opt-in supports that would help students master the lesson's objectives?
Type your answer below.

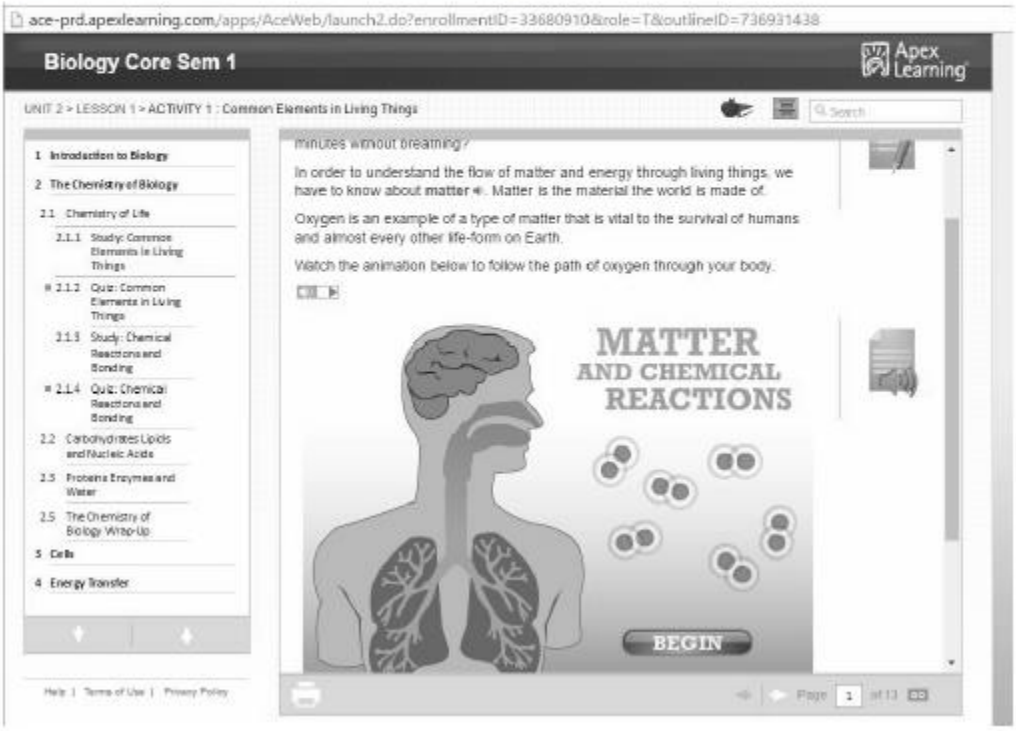


Figure 6. Example of pilot survey question.

After reading each open-ended response from questions 4, 5, and 6 (see Figure 5), I circled and highlighted key phrases and then placed them in two categories: activity type or built-in/opt-in support. From this, I developed questions for one of my researcher-designed questionnaires, Interacting with Apex Learning Content – Part I (see Appendix G). Table 5 shows the built-in/opt-in supports teachers selected in the pilot study.

Table 5

Built-in/Opt-in Support in Researcher-Designed Questionnaire

Build-in/opt-in supports	Adaptive versus strategic
Animations/slideshows	Strategic
Appendix A resources	Adaptive
Drag-and-drop activities	Strategic
My progress report	Adaptive
Navigation bar	Adaptive
Read/respond activities	Strategic
Transcript icon	Adaptive
Vocabulary supports	Adaptive

Table 6 shows the Apex Learning activity types teachers selected during participation in the pilot study.

Table 6

Description of Apex Learning Activity Types

Apex Learning activity type with tasks	Apex Learning Curriculum Alignment Handbook description
Computer-scored test	Summative unit-level assessment
Practice	Helps students apply and extend learned concepts
Study	Direct instruction that demonstrates course concepts using text, images, multimedia demonstrations, and interactive learning opportunities
Quiz	Study-level or lesson-level assessment

The Apex Learning Curriculum Handbook was used in both the pilot study and the case study. The course design follows a format for consistency and to ensure efficient navigation through the content. Apex Learning course design follows a unit, lesson, activity format; the design chunks the course into smaller, more manageable sections. Units consist of several lessons, and the lessons consist of activities. Apex Learning identified 17 activity types that students may encounter; however, the certified teachers

only referenced four identified in Table 6. Apex Learning also provides course materials such as worksheets, off-line assessments, and other documents; however, these materials function as support materials, not as required instructional materials. The use of these materials is dependent on whether the certified teacher requires the student to use the material. The data generated from the pilot study played a significant role in the development of the researcher-designed surveys. The pilot study allowed me to identify the activity types for completion of an academic task, a key component in the analysis of student use of SRL habits (Cleary et al., 2012).

Credibility and Trustworthiness of the Study

Patton (2002) and Yin (2014) explained that case study research design allows for flexibility in the decisions made around the instrumentation and data collection process. To ensure validity and reliability, researchers were encouraged to keep detailed records, maintain a timeline of events, and record their thinking throughout the entire data collection process (Guest et al., 2013; Miles et al., 2014; Yin, 2014). I used NVivo 11 to analyze the data, starting with the pilot data and coded responses by the phase of SRL. I documented my process in memos found in Appendix J, K, and L–M. I exported the responses from the three researcher-designed questionnaires into NVivo and used the start list to code the results by the phase of SRL and content interactions (i.e., student-to-teacher and student-to-content).

Aligning the research questions to the instrumentation is essential to construct validity and external validity (Patton, 2002; Yin, 2014). To achieve alignment, I created a

list of SRL actions and behaviors that appeared in the research collected during the literature review and can be found in Table 7

Table 7

Self-Regulated Learning Start List

Phase	Interactions in the learning environment
Forethought (planning)	Plans or decides what steps to take to complete an activity Sets goals Finds or seeks information Encourages students to continue with or attend to the task Design influences students to be self-directed Design influences students to believe in themselves Influences students to equate performance to effort
Performance (monitoring)	Encourages students to monitor progress Develops personal mental models, pictures, or analogies Influences time on task Assists students in arranging the learning environment Uses note-taking strategies Seeks help Mastery-based or competency-based instruction Academic feedback (settings) Navigating content Encourages thinking and problem-solving skills Promotes tracking progress Develops thinking steps or metacognition
Evaluation	Measures performance against a standard Accommodates learning styles Provides choice and flexibility Influences personal satisfaction

I presented teachers with a list of SRL actions and behaviors and asked the teachers to identify actions or behaviors they taught. I categorized their selections by SRL phase and created a node for each phase of SRL in NVivo 11. I matched the data collected to the SRL list and coded the data to the appropriate phase in NVivo 11.

I maintained credibility and trustworthiness by organizing data in a manner that allows the researcher to identify generalizations and themes. Output data generated by NVivo 11 was analyzed using a code list developed from the above start list (see Table

7). I used NVivo 11 to analyze the pilot survey data, open-end responses from the online questionnaires, and textual data from the researcher-designed questionnaires. I used descriptive coding to analyze secondary sources of data (i.e., professional development documents and physical artifacts) and then conducted a content analysis to identify and match patterns within the data. This process established internal validity and built an in-depth explanation of how student-to-content and student-to-teacher interactions supported SRL. The process of constructing a case study ended with the construction of an in-depth narrative of the case, which Patton (2002) said should be holistic, audience-specific, and information-rich. This ongoing process called for field notes and the use data summary worksheets. To ensure reliability, all steps and procedures used throughout the study were documented.

Site Selection Process

The state department of education requires all alternative education programs to select two goals. I was only interested in examining those alternative education programs that sought to increase the percent of eligible seniors in the program who graduate. To identify those programs, I copied the text from the online database into an Excel spreadsheet, rearranged and sorted data into columns by corporation, program, and program goals, and then filtered the data by program goal. The number of alternative education programs decreased the potential sites from 212 to 78.

I returned to the Excel spreadsheet created with data from the alternative education database and, from the 78 programs, narrowed my focus to those that reported

a graduation rate at least 20% higher than the state average and reported an increased graduation rate for 3 consecutive school years. Table 8 shows the number of programs that remained after I applied the selection criteria.

Table 8

Potential Alternative Education Program Criteria

Category	Number of alternative programs
Did not meet three criteria	41
Met three criteria	24
Program closed	4
New program -- 1 year of data	4
New program – 2 years of data	5

Each school year, alternative education programs are required to complete a renewal grant application. The application provides the state with detailed information about the student population, number of teachers, services provided, and curriculum. Next, I accessed each individual alternative education program grant application for the 24 programs that met the three inclusion criteria to determine the type of digital curriculum specified in question 11 of the grant application. More specifically, I only included alternative education programs that reported using Apex Learning for delivery of instruction during the 2015–2016 school year. Table 9 identifies the digital curriculum used by each alternative education program

Table 9

Digital Curriculum Provider by Program

Digital curriculum	Number of alternative education programs
A+	3

Alek	1
Apex Learning	5
Edgenuity (formerly e2020)	3
Edmentum (formerly PLATO Learning)	8
GradPoint	2
None Listed	2

To narrow my focus to one site, I used the grant application data to determine the number of certified teachers who worked at each of the five Apex Learning sites. Two of the five programs indicated the presence of three or fewer teachers. These two alternative programs were eliminated from the potential site list due to sample size limitations. Three out of five programs indicated the presence of seven or more certified teachers.

To narrow the selection to one representative site for my case study, I looked for a unique characteristic. Alternative education programs are not schools; rather, these programs represent special services provided by a leading school district. The traditional high schools receive a school number from the state department of education and hold accreditation from an accrediting agency or the state department of education. I cross-referenced the names of the remaining three programs against the three remaining alternative programs, and only one program had earned full accreditation status at the time of my study. Table 10 shows the three alternative education programs selected as potential sites for my case study.

Table 10

Final Site Selection Data

	Graduation rate of eligible seniors	Increased graduation rate for 3	Digital curriculum	Teachers	Unique characteristic

		consecutive years			
Program 1	80%	Yes	Apex Learning	7	N/A
Program 2	88%	Yes	Apex Learning	8	Accredited
Program 3	80%	Yes	Apex Learning	14	N/A

Setting

My study took place in a computer-based alternative program serving high school students in the Midwest State. At the time of the study, I was the principal of the alternative education program. I balanced my dual roles as the principal and as the researcher by conducting an anonymous case study. “Recruitment, informed consent, and data collection” (e.g., researcher-designed questionnaires) occurred in such a way that I did not know which certified teachers participated in the study (Walden University, 2018). The anonymous nature of my case study design prevented me from connecting the data gathered to any one certified teacher.

Data Collection

Due to my dual role as principal and researcher, it was necessary to limit the amount of contact and/or communication regarding the case study. Outside of regular school hours, I sent an email to the seven certified teachers employed in the alternative education program explaining the purpose of my study and providing instructions to access the researcher-designed surveys in SurveyMonkey and where to obtain a folder. My directions asked the certified teachers to review and complete the online consent

form. Teachers were asked to review pages 4 and 5 of the Apex Learning Curriculum Alignment Handbook.

The Interaction with Apex Learning Content – Part I (see Appendix H) and Part II (see Appendix G) surveys remained open for 3 weeks. The Providing Self-Regulated Learning Instruction questionnaire (see Appendix I) included questions that asked highly qualified teachers to describe one way but no more than three ways in which they provide SRL instruction. Teachers provided written responses that included their own personal student observation data and/or discussed the names of specific instructional materials. I exported the open-ended data out of SurveyMonkey. I arranged the data by teacher number and the phase of SRL—forethought, performance, and evaluation. Using the open-ended responses from teachers, I organized a list of potential artifacts.

The teachers' generated list of potential artifacts included student calendars, graduation outlines, goal-setting documents, long-term and short-term goals, calculated averages, percent complete, Apex Learning reports, evidence of looking up answers, study guide sheets, practice problems, time on task, quiz review results screens, and reviews at the end of lessons. Teachers were asked to place their artifacts in the yellow folder that they obtained at the beginning of the study and submit their folder within 5 days of receiving the second email.

Summary

This chapter provided a description of the case, a computer-based alternative program, and the subunits of analysis: the certified teaching staff. I selected the case for

two reasons: (a) the program fit the sampling criteria, and (b) the program has seen a dramatic increase in graduation data from 65% to 93% in 3 years.

The alternative program has implemented professional development with an instructional focus on encouraging students to develop SRL habits. I maintained construct validity by corroborating data from multiple sources of data; maintained external validity by aligning my research questions to a single theory, Zimmerman's SRL framework; and established internal validity by developing a start list of case-specific vocabulary. I identified words and phrases by conducting a pilot study before beginning the actual study.

Chapter 3 outlined the steps to obtain the permissions to conduct the case study. First, I obtained permission from the school board and superintendent of schools by gathering signatures on the following documents: data use agreement, consent form, confidentiality agreement, and letter of cooperation for opt-in data. Next, I provided the highly qualified teachers with an overview of the entire study by sharing my purpose, explaining the estimated effort and time for participation, and describing the study's instrumentation. I emphasized that participation was strictly voluntary and shared how I intended to maintain anonymity and confidentiality. Finally, I provided teachers with directions for accessing and completing the informed consent form.

I also briefly shared my plan for data analysis in Chapter 3. By using the single embedded case study, I was able to describe the computer-based alternative program and focus on the subunits of analysis, the seven highly qualified teachers. I used

SurveyMonkey to administer the researcher-designed questionnaires for both the pilot study and actual study. I used NVivo 11 for pattern matching and content analysis. In Chapter 4, I will present the results of data collection and analysis. In Chapter 5, I will discuss the case study findings and provide conclusions and recommendations for practice and future research.

Chapter 4: Results

The purpose of this case study research project is to provide a rich description of SRL in a CBLE. The study surveyed five out of seven certified teachers and answered four research questions:

RQ1: What SRL habits do alternative school teachers perceive are most essential for struggling students to develop when working in a CBLE?

RQ2: In what ways did teachers encourage struggling students to use SRL strategies in a CBLE?

RQ3: How did teachers use student-to-content interactions to promote forethought, performance, and evaluation in a CBLE?

RQ4: How did student-to-teacher interactions promote forethought, performance, and evaluation in a CBLE?

Demographics of Participants

To verify my participation percentage, I accessed an overview page of questionnaires associated with the research project within my SurveyMonkey account that showed five of the seven certified teachers at the selected site participated in my case study. Figure 7 shows the number of confirmed participants. I confirmed the participation rate through the evidence collected in the participant folders that everyone returned at the end of the study.

TITLE	RESPONSES
Providing Self-Regulated Learning Instruction Created 10/20/2016	5
Interacting with Apex Learning Content - Part II Created 10/20/2016	5
Interacting with Apex Learning Content - Part I Created 10/20/2016	5
Informed Consent - Onsite Highly Qualified Teachers Created 10/20/2016	5

Figure 7. Response data.

The case study site employed seven certified teachers in the alternative education program at the time of the study. Collectively, the seven participants had an average of 18.4 years of teaching experience.

- One participant held an elementary generalist license and special education license and had 35 years of teaching experience.
- One participant held a physical education license and had 3 years of teaching experience.
- One participant held a mathematics license for grades 5-12 with 8 years of teaching experience.
- One participant held a teaching license in physical education, biology, and general science and had 29 years of experience.

- Three participants were science teachers with content specialization in biology, general science, chemistry, and physics and had teaching experience between 17 and 19 years.

Role of the Highly Qualified Teacher

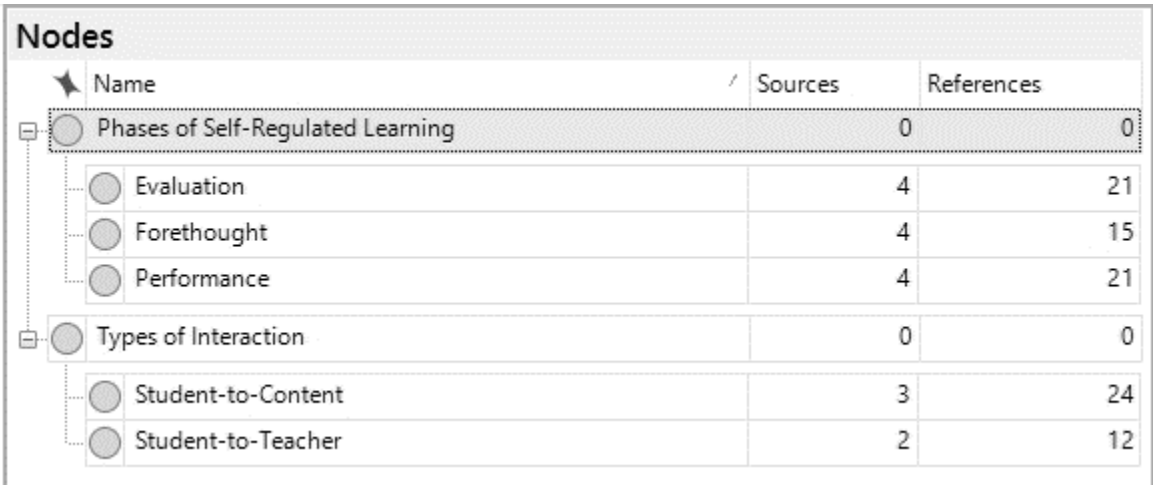
In many ways, the alternative program teachers had the same responsibilities as teachers in a traditional school setting. These teachers had grading responsibilities and used an electronic gradebook to record student progress. They established rules and expectations for student performance, both academic and behavioral. They reinforced performance expectations and celebrated students' accomplishments within their classroom.

As previously described in Chapter 3, alternative education students were engaged in self-paced and mastery-based learning. They received a course booklet when enrolled in a new Apex Learning class that contained guided notes, practice problems, and reading assignments. Certified teachers and instructional support staff were available to help students with their Apex Learning coursework. Students who were new to the alternative education program, often struggled to navigate the curriculum. To assist, staff used booklets as an instructional tool to support learning. Teachers monitored student progress using a student activity report and/or using the scores earned by their students within their Apex Learning gradebook.

Data Analysis

SurveyMonkey was used to collect anonymous survey responses from teachers employed at the alternative education program site selected for the case study. Teachers completed three short questionnaires and submitted artifacts from a prescribed list. Data analysis began by exporting data from SurveyMonkey. A summary report of all respondent data was exported for Interacting with Apex Learning Content – Part I, Interacting with Apex Learning Content – Part II, and Providing Self-Regulated Learning Instruction. I reviewed the paper copies and made annotations on each data sheet, circling and underlining specific words.

Data was imported into an internal source file in NVivo 11, and I used the chart wizard to create a node structure based on the phases of SRL (forethought, performance, and evaluation) and the type of interaction (student-to-teacher or student-to-content), as shown in Figure 8. The application created a quick comparison table to be generated for data analysis.



Nodes

Name	Sources	References
Phases of Self-Regulated Learning	0	0
Evaluation	4	21
Forethought	4	15
Performance	4	21
Types of Interaction	0	0
Student-to-Content	3	24
Student-to-Teacher	2	12

Figure 8. NVivo node structure.

Pilot study teachers were provided with a list of commonly used phrases by SRL researchers. Teachers were asked to indicate whether they provided instruction on the behavior. In addition, teachers described the frequency in which instruction was provided. From this data, I compared the collected responses to the SRL behavior that appeared in the start list created from the results of the pilot study (see Table 8).

Questionnaire data from the multiple response questions, forced-choice questions, and ranking questions was coded by SRL phase. Each phase was given a color: forethought was red, performance was blue, and evaluation was yellow. The same data were also coded by type of interaction. Next, I used the NVivo 11 chart wizard to explore the data and create a chart for each researcher-designed survey. The chart wizard allowed me to compare the data within each researcher-designed survey by phase. From the chart wizard, I clicked on each phase of SRL and interaction to view a list of words by phase and interaction. Because this format was not particularly useful, I created a chart in Microsoft Word and Microsoft Excel.

The Apex Learning Curriculum Alignment Handbook provided an overview of the design elements within the digital content. Teachers identified four activity types that students regularly encounter: computer-scored tests, practice, study, and quizzes. These activity types required students to engage in the completion of a task during which students moved into and out of each phase of SRL (see Table 11).

Table 11

Description of Apex Learning Activity Types

Student interaction	Apex Learning design feature	Description
Required	Computer-scored test	Summative unit-level assessment
Required	Practice problems	Helps students apply and extend learned concepts
Required	Study	Direct instruction that demonstrates course concepts using text, images, multimedia demonstrations, and interactive learning opportunities
Required	Quiz	Study-level or lesson-level assessment

The Apex Learning Online Scaffolds document provided an overview of the support features that are found within the content. Apex Learning provides two types of built-in/opt-in supports within the instructional content: adaptive scaffolds and strategic scaffolds. Examples of adaptive scaffolds included text-to-speech support, vocabulary support, and highlighted passages. Strategic scaffolds involved thinking and/or modeling strategies that encourage students to take control of their learning. Table 12 shows the nine types of Apex Learning built-in/opt-in supports that students used during course completion.

Table 12

Built-in/Opt-in Supports

Student interaction	Apex Learning design feature	Description
Adaptive	Animation/slideshows	Learner preference
Adaptive	Appendix A resources	Syllabus, key words, calculators, study tips
Strategic	Drag-and-drop activities	Summary of key terms and/or review of key concepts
Strategic	My progress report	Course progress
Strategic	Navigation bar	Structure of content
Strategic	Read/respond activities	Summary of key terms and/or review of key concepts
Adaptive	Read aloud supports	Increases comprehension and understanding
Adaptive	Transcript icon	Increases comprehension and understanding
Adaptive	Vocabulary supports	Increases comprehension and understanding

RQ1

RQ1 asked teachers to identify the most essential SRL habits students needed in a CBLE. Apex Learning Content – Part II consisted of 18 questions: seven forced-choice questions, seven open-ended response, three multiple-selection questions, and one participant number identifier. Forced-choice questions asked teachers to select a phrase that they perceived as most essential to a student's success. Teachers provided an explanation of their selection after each forced-choice question. Teachers read a prompt that described the relationship between SRL and academic success before questions 16–18 were answered. Teachers were asked to think about tasks that students completed and select the SRL phase they perceive is the most essential for a positive outcome. Teachers ranked the behaviors from most important (5) to least important (1).

Evidence of Trustworthiness

Credibility and trustworthiness were maintained throughout the study by the way the instruments were aligned with the four research questions (see Appendix M). Over the course of my tenure as principal of the alternative education program, I have developed certain beliefs about teaching and learning in a CBLE. To minimize bias, I used Zimmerman's framework as a guide throughout my study.

Based on the pilot, my three researcher-designed questionnaires used the following protocol steps:

1. Identify tasks in which students completed their Apex Learning courses.
2. Use the pilot study's generated list of SRL action and behaviors.
3. Design questions that require teachers to connect Apex Learning design elements (e.g., activity types and built-in/opt-in supports) to the list of SRL action and behaviors from the pilot study.
4. Design questions that require teachers to identify instructional strategies they use to promote student use of phase-specific SRL actions and behaviors.
5. Develop a node structure in NVivo 11 aligned with my coding strategy.

As a result, the case study questionnaires consisted of a variety of question types. The questions allowed me to explore how highly qualified teachers used the student-to-content interactions to encourage students to enact SRL behaviors in a CBLE.

Forethought

Forced-choice questions 1 and 3 asked teachers to compare goal setting/planning against activating background knowledge. During the forethought phase, teachers perceived setting a goal/developing a plan as more important than activating background knowledge. Of the five teachers, all selected setting a goal over activating background knowledge in question 1. Four out of five teachers selected developing a plan over activating background knowledge in question 3. Most notably were the open responses that supported goal setting/planning as the most essential habit. Teacher 2 (T2) stated that having a plan "is most essential to meet each student where they are, develop a plan, and hope that it helps them accomplish a specific task." Teacher 4 (T4) stated that when "students don't have a plan, then they will not maintain focus and are less likely to accomplish tasks." Teacher 1 (T1) shared, "Students need to have a plan or specific strategies to help them tackle their studies and quizzes." Teacher 5 (T5) remarked, "Background knowledge should be activated as part of the plan."

All teachers selected developing a plan as being more important than activating background knowledge. T1 said:

> Some students do not have the background knowledge and therefore trying to activate it does them little to no good. They need to have a plan or specific strategies to help them tackle their studies and quizzes. They can use the plan or strategies to help them navigate the online course to answer study and quiz questions, so they can pass assessments and earn credits.

Performance

The forced-choice questions that assessed the performance phase of SRL produced more varied results. Teachers identified four behaviors as most essential: navigating Apex Learning content, monitoring strategy use, using the study to increase understanding, and developing thinking steps. Teacher responses indicated that students relied on their navigation capabilities as a method of supporting their own success. In other words, students who had not memorized facts or needed to reference the material accomplished tasks when they effectively navigated Apex Learning content. Teacher 3 (T3) indicated that students who use "the study guide" can navigate Apex Learning. T4 stated, "Students wouldn't need to use any other resource if they can navigate."

Three teachers selected monitoring strategy use as the most essential SRL behavior. T 2 noted that strategy use "helps students become more efficient and effective" and T3 stated that strategy use "helps them learn much more efficiently and deeply." T1 indicated that "recognizing the strategies they have in their arsenal and using them helps the student have the most success."

The final rank order question indicated that teachers perceived developing thinking steps as an essential self-regulated behavior. Teachers noted developing thinking steps increased the likelihood of success not only in school but also in life. T2 noted, "If the students can learn best methods/strategies of thinking, they will have the best chance at success (and this would be true with anywhere they go or what they do in life)." T5 said, "Thinking and problem-solving are essential for good work." Teachers identified

these student behaviors as signs of developing thinking steps, monitoring strategy use, using the study to increase understanding, and navigating Apex Learning content.

T2 indicated thinking was a lifelong learning skill: “If the students can be learning the best methods/strategies of thinking, they will have the best chance at success.” T4 stated that thinking and problem-solving was essential for good work. T3 viewed each performance behavior as a strategy that boosted success stating, “These are all important, but knowing or understanding the thinking required to accomplish a task will provide the biggest payoff/success rate.”

Evaluation

The evaluation phase produced similar results to the forethought phase; all five teachers felt strongly about the same evaluation behavior and selected the same response. Teachers selected finding the most useful information over tracking progress toward a goal. Teachers cited that students who identified learning errors accomplished goals in a timely manner. T4 stated that “Without the knowledge of what students know or don’t know, they cannot understand progress towards the goal and what may be helping or inhibiting progress.” T2 remarked that “Knowing what you know or don’t know is essential to build on knowledge already known and to recognize when to ask for support when you don’t know something.”

All five teachers selected identifying content that was understood/not understood as an essential self-evaluation behavior over influencing time on task. T2 and T3 each provided a succinct reason for their selection. T2 stated, “Having the ability to sort the

main or necessary information form the less important is probably the key component of time management." T3 said, "Even if a student is on track, if they can't find useful information in the lesson, they won't be successful."

Self-Regulated Learning Phase versus Length of Task Completion

Task completion was another critical factor in measuring SRL (Cleary et al., 2013). Teachers were given three types of tasks to consider while ranking the phase of SRL. The tasks were earning a credit, completing a reading/writing assignment, and passing an assessment. The Apex Learning course syllabi provided educators with a time estimation for task completion in each activity type (e.g., computer-scored test, practice problems, study, and quiz). The Apex Learning Curriculum Alignment Handbook provided educators with an average time estimation for course completion. The rank-order questions showed the alternative education teachers associated forethought and evaluation were more likely to promote positive outcomes than performance behaviors. SurveyMonkey provided a score for each rank-order question, which I used to organize the SRL behaviors in order of most important (1) to least important (5).

The Apex Learning Curriculum Alignment Handbook identified tasks that take students 30-60 minutes to complete, and teachers submitted three Apex Learning artifacts associated with the length of this task: guided notes, practice problems, and writing assignments. Teachers indicated these tasks require students to identify what is understood or not understood (i.e., evaluation). Teachers identified the students who

needed to activate their background knowledge to successfully complete a task that took 10–20 minutes to complete (see Table 13).

Table 13

Task Length versus Phase of Self-Regulated Learning

Task	Length of task	Most important
Earning a credit	Long (70–90 hours)	Forethought/Evaluation
Completing a reading/writing assignment	Medium (30–60 minutes)	Evaluation
Passing an assessment	Short (10–20 minutes)	Forethought

As shown in Table 14, teachers identified that both forethought and evaluation were the most essential SRL habits when completing long tasks. The behaviors associated with forethought were "develops a daily plan to accomplish their goal" and "believes that they can accomplish their goal." The evaluation behaviors identified by their selections were "monitors progress against a standard" and "identifies mistakes in their own work." The completion of medium-length tasks required students to evaluate their performance against a standard to demonstrate positive outcomes as indicated by the site teachers. Teachers perceived forethought as the most essential phase of SRL as related to short tasks. Teachers identified activating background knowledge as the most essential behavior.

Summary of RQ1

Teachers identified strategic planning and goal setting as the most essential SRL behaviors associated with forethought. This perception was corroborated by open-ended responses and artifacts submitted by the highly qualified teachers. Collectively, teachers said having a plan helped their students maintain focus and complete individual tasks

associated with the Apex Learning curriculum. Teachers noted that other behaviors such as activating background knowledge and evaluating course content, were important behaviors, but having a daily goal and an overall plan for completing courses was more likely to lead to student success.

Teachers identified four essential performance behaviors students need to develop when completing tasks within the Apex Learning content: navigating Apex Learning content, using the study to increase understanding, monitoring strategy use, and developing thinking steps. Teacher data also indicated that students must be able to search the content, take notes, and attend to the task at hand to perform in a successful manner. The essential behaviors were validated based on open-ended responses and artifacts submitted by the teachers. Notably, the open-ended responses suggested that students need to regulate their performance by controlling their interaction with the online content. Teachers encouraged students to use a variety of strategies and tools to assist them in accessing the content effectively and efficiently.

Teachers identified two behaviors as the most essential evaluative behaviors associated with positive outcomes: finding useful material and identifying content that is understood or not understood. Evaluative behaviors occurred when students make judgements about their work. Based on open-ended responses, teachers viewed self-judgement as students having the ability to accurately calibrate their learning. More specifically, teachers inferred students who can “find the most useful material” and

"identifying content that is understood or not understood" do complete classroom task and accomplish their overall learning goals.

RQ2

RQ2 asked teachers to describe how they encourage students to engage in SRL. The researcher-designed questionnaire Providing Self-Regulated Learning Instructions was analyzed. The questionnaire consisted of six open-ended questions with two questions per phase. The teachers were asked to describe instructional practices and Apex Learning content support they used to encourage students to engage in SRL. I organized the data into a table by phase and created columns for instruction and tools. I examined the teacher responses closely for words and/or phrases and created a table to help identify instruction versus tools.

Forethought

Three of the five teachers were specific as to how they provide instruction on goal setting or evaluating the content. T1 listed calendars and graduation outlines as tools used to provide instruction during the forethought phase. T3 explained, "I interview students about their goals and then instruct on the best ways he/she might go about meeting those goals." Teachers did not provide specific names of design elements within Apex Learning content they used to support instruction; however, T4 referenced the use of calculated averages or estimated time needed per course to help students set performance goals. Table 14 provides a summary of the words and phrases used to describe forethought.

Table 14

Forethought: Instruction versus Built-in/Opt-in Supports

Instruction	Built-in/opt-in supports
Calendars	Apex Learning course activity report
Graduation outline	My progress report
Key terms	Calculated averages
Purpose for reading	Transcript
Question types	Practice or check-up problems
Setting goals	
Text structure	

T5 made comments unlike the other four participants. This teacher did not focus on goal setting; rather, T5 provided content of a strategy to activate background knowledge and increase comprehension. “I talk to students about purpose for reading and evaluating text structure. We identify the question types focusing on ‘thinking.’ We use key terms to find answers.” Moreover, T5 indicated that instructions given to students are to click on the transcript and use check-up problems in math. T5 also commented on the text structure of the Apex Learning content.

Performance

The teachers provided a variety of responses for how they provide instruction during the performance phase of SRL; however, their responses centered around confirming answer choices when completing assessments and/or monitoring their progress and remaining on track with their goals. T1 stated, “When they are taking a quiz, I always encourage them to find evidence to support the answer they have chosen.” T3 shared, “In setting up calendars and crossing off finished quizzes, students have a visual. I also check in several times a week to insure students are on track.”

Teachers did identify design features within the Apex Learning content that support their performance instruction. Three teachers identified two activity types, practice problems and study sections. T5 identified check-up problems as a design element that is used to support performance instruction. Check-up problems were similar to practice problems and were useful in that the check-up problems provide a model example (i.e., cognitive scaffold). T3 inferred student calendars were developed around the specific number of activities found in the course syllabus. Table 15 provides a summary of the words and phrases used to describe performance.

Table 15

Performance – Instruction versus Built-in/Opt-in Supports

Instruction	Built-in/opt-in supports
Calendars	Apex Learning boxes
Calendar expectations – crossing off quizzes	Apex Learning review
Find evidence to support their answer	Computer-scored test
Looking up answers	Check-up problems
Number of completed	Practice problems
	Quizzes

Evaluation

I analyzed the responses for the evaluation phase in the same manner. Teachers provided responses about how they taught students how to use build-in/opt-in support. The results collected were consistent with the information collected for the forethought and performance phases; teachers discussed the importance of focusing the students' attention on their calendar. However, T3 identified several new examples of providing instruction, which included the use of instructional tools, such as quiz review, time-on-

task data, and attendance data. In addition, T5 said, “When students do not find success on a quiz, I ask them which strategies they used and which strategies they could have used to find success.” This indicated that the teacher had established certain instructional practices.

T3 and T5 indicated that they encouraged students to reflect on their time on task and effort when completing quizzes in accordance to the pace on the calendar. T1 and T4 shared that they used quiz review sheets to help a student reflect on errors when the student did not pass the assessment within three attempts. Three teachers indicated that they encouraged students to use check-up problems, strategic scaffolds (i.e., interactive parts of the online study, and results at the end of a completed assessment and/or reviews at the end of a lesson). T2 and T3 did not identify specific names of activity types or built-in/opt-in supports that they used to support instruction and provided responses such as unknown or unsure. Table 16 provides a summary of the words and phrases used to describe evaluation.

Table 16

Evaluation: Instruction versus Build-in/Opt-in Supports

Instruction	Built-in/opt-in supports
Calendar	Check-up problems in math
Quiz review	Interactive parts of the online study
Strategies	Results screen at the end of a quiz
Teacher reports – attendance and time on task	Reviews at the end of a lesson
	Study material
	Text boxes in English

Summary of RQ2

In the researcher-designed questionnaire, all teachers were asked to describe the way they encouraged SRL behaviors. The Providing Self-Regulated Learning Instruction questionnaire served as the primary source of data. The teachers identified Apex Learning content that students were encouraged to use; they were also asked to describe how their one-on-one interactions with students encouraged self-regulation. T1, T2, T3, T4, and T5 indicated that they teach students to use calendars and graduation outlines to encourage forethought behaviors. In addition, T1, T2, T3, T4, and T5 said they have a process to teach students to set long-term and short-term goals, including using an Apex Learning course activity report and the student materials (i.e., guided notes, practice problems, and writing assignments) to help students develop a daily plan and long-term plan to graduate from high school.

Questionnaire responses focused entirely around the act of monitoring progress toward the plan. Collectively, T1, T2, T3, T4, and T5 indicated that they taught students to use their calendar and long-term plan to monitor their progress. The performance phase

of self-regulation was described as the task strategies that students used during learning (Zimmerman, 2002). Teacher responses emphasized two performance behaviors: ability to monitor progress and time management. T1, T2, T3, T4, and T5 used the student materials and calendars to drive the performance phase.

T1, T2, T3, T4, and T5 found it difficult to identify how students were encouraged to engage in the evaluation phase of SRL. Two teachers, T1 and T4 were unable to identify Apex Learning activity types or built-in/opt-in supports that encourage evaluation. T1 and T4 also identified built-in/opt-in tools that would support behaviors related to evaluation. T1 referred to the "matching questions, and the interactive parts of the online study guide." T4 indicated that the Apex Learning content provides feedback to students at the end of the quiz or lesson but was not able to describe how the content was used to promote evaluation. T1 and T4 discussed the use of a quiz review sheet to guide their instruction and shared how they used the student calendar to support their instruction.

RQ3

RQ3 is about identifying the activity types and built-in/opt-in supports that they encouraged students to use during goal setting and planning, monitoring their performance, and evaluating their progress against a standard. In other words, teachers were asked to describe student-to-content interactions used during each phase of SRL: reading informational text, viewing short video clips, solving practice problems, writing essays or journal entries, and interacting with drag-and-drop activities (Abrami et al.,

2011; Bol & Garner, 2011). The Interacting with Apex Learning Content – Part I questionnaire was analyzed. The activity types and built-in/opt-in supports represented interactions with the content that students regularly encounter within an Apex Learning course.

Results by Activity Types

Activity types represented content interactions in which the alternative education students are required to complete and present key instructional materials. The activity types were computer-scored tests, practice problems, study materials, and quizzes. T1, T2, T3, T4, and T5 were asked to select the activity types that they encouraged students to use during each phase of SRL.

The order of significance (most to least) during forethought was quiz, computer-scored test, study, and practice. One teacher participant identified another activity type, the unit overview. According to Apex Learning (2015), unit review is the introductory material intended to activate background knowledge at the beginning of a unit and/or lesson. T1, T2, T3, T4, and T5 selected practice problems as the most significant activity type used to encourage students during the performance phase. T1, T2, T3, T4, and T5 selections indicated students are encouraged to use computer-scored tests, the study, and quizzes equally during performance. During the evaluation phase of SRL, the highly qualified teachers' selections indicated they equally encouraged students to use computer-scored tests, practice problems, and quizzes. Table 17 shows an analysis of the Apex Learning activity types T1, T2, T3, T4, and T5 selected by SRL phase.

Table 17

Summary of Activity Types by Phase

Student Interaction	Apex Learning design feature	Description	Teacher selections – Forethought	Teacher selections – Performance	Teacher selections – Evaluation
Required	Computer-scored test	Summative unit-level assessment	3	4	4
Required	Practice problems	Helps students apply and extend learned concepts	1	5	4
Required	Study	Direct instruction that demonstrates course concepts using text, images, multimedia demonstrations, and interactive learning opportunities	2	4	2
Required	Quiz	Study-Level or lesson-level assessment.	4	4	4

Results by Built-In/Opt-In Supports

The next set of questions found in the Interacting with Apex Learning Content – Part I questionnaire asked teachers to examine built-in/opt-in supports students use to encourage behaviors in each phase of SRL. I used the same rules for inclusion/exclusion to determine which content supports influenced students to engage in SRL. Strategic scaffolds, drag-and-drop activities, and my progress report were selected by the teachers as content that encouraged students to engage in performance behaviors. Moreover, these content supports were also selected as scaffolds that encouraged students to engage in

forethought and evaluation. T1, T2, T3, T4, and T5 only identified one content support that influenced students to engage in forethought—the navigation bar. Table 18 lists the three content supports that teachers said promoted evaluation behaviors: drag-and-drop activities, my progress report, and read/respond activities.

Table 18

Summary of Built-in/Opt-in Supports by Phase

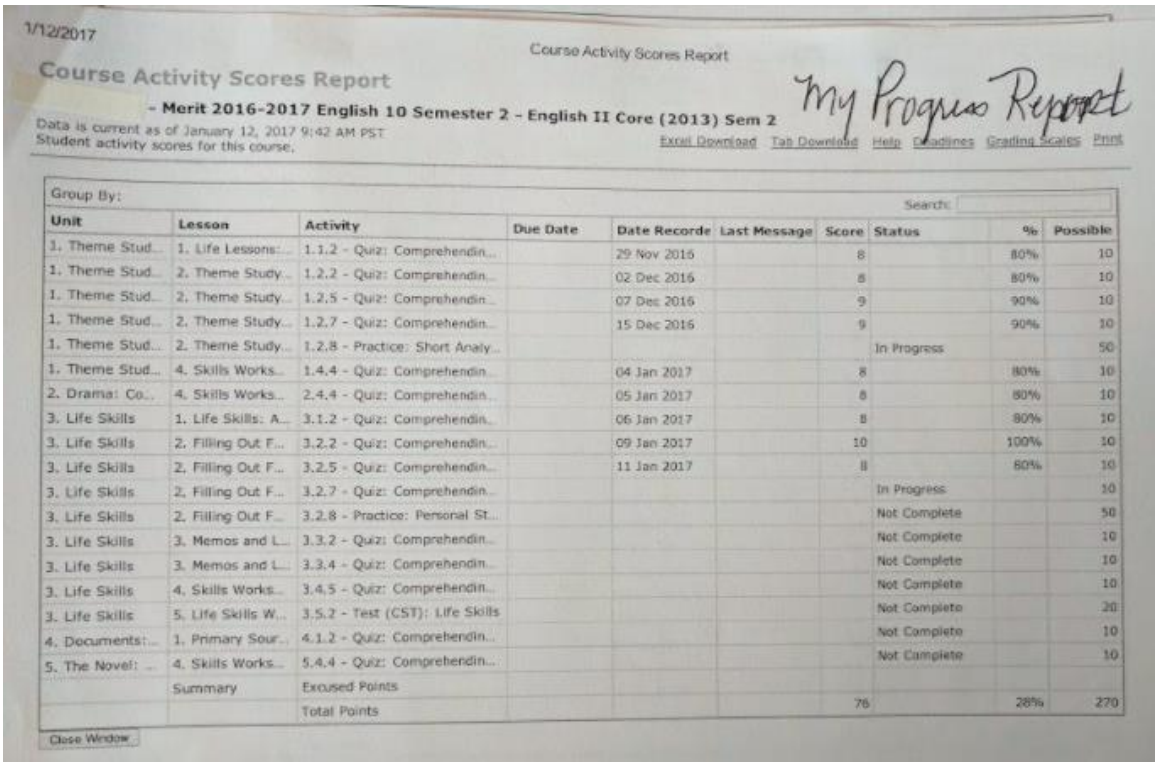
Type of scaffold	Apex Learning design feature	Description	Teacher selections – Forethought	Teacher selections – Performance	Teacher selections – Evaluation
Adaptive	Animation/slideshows	Learner preference	0	4	0
Adaptive	Appendix A resources	Syllabus, key words, calculators, study tips	1	4	1
Strategic	Drag-and-drop activities	Summary of key terms and/or review of key concepts	0	5	3
Strategic	My progress report	Course progress	5	5	4
Strategic	Navigation bar	Structure of content	2	4	0
Strategic	Read/respond activities	Summary of key terms and/or review of key concepts	0	5	3
Adaptive	Read aloud supports	Increases comprehension and understanding	0	4	0
Adaptive	Transcript icon	Increases comprehension and understanding	0	4	0

Adaptive	Vocabulary supports	Increases comprehension and understanding	0	4	0

Secondary Sources of Data

To corroborate my findings and answer RQ3, I collected secondary sources of data from the teachers. RQ2 asked teachers to identify ways they encouraged students at risk of dropping out to use SRL behaviors. Based on the data from RQ2, I created a list of potential artifacts, which was emailed to the teachers. All five teachers submitted artifacts for review in their yellow folders. The teachers did not provide the same artifacts.

Two teachers provided an example of a course report from within Apex Learning, as shown in Figure 9. Both teachers and students had access to this report; teachers found the report by way of their gradebook, and the students found it via the My Progress report, which was an example of a built-in/opt-in support. The course activity report showed student progress by indicating the number of scored activity types (i.e., computer-scored tests, quizzes, study, and practice) that have been completed. Apex Learning courses were divided into units, lessons, and activities. The activity numbers corresponded with Apex Learning activity types such as quizzes, computer-scored tests, and practice problems. Students were required to complete all course activities to earn a credit. Figure 9 shows an example of a students' activity report.



1/12/2017 Course Activity Scores Report

Course Activity Scores Report

My Progress Report

- Merit 2016-2017 English 10 Semester 2 - English II Core (2013) Sem 2

Data is current as of January 12, 2017 9:42 AM PST
Student activity scores for this course.

Excel Download | Tab Download | Help | Deadlines | Grading Scales | Print

Group By: Search:

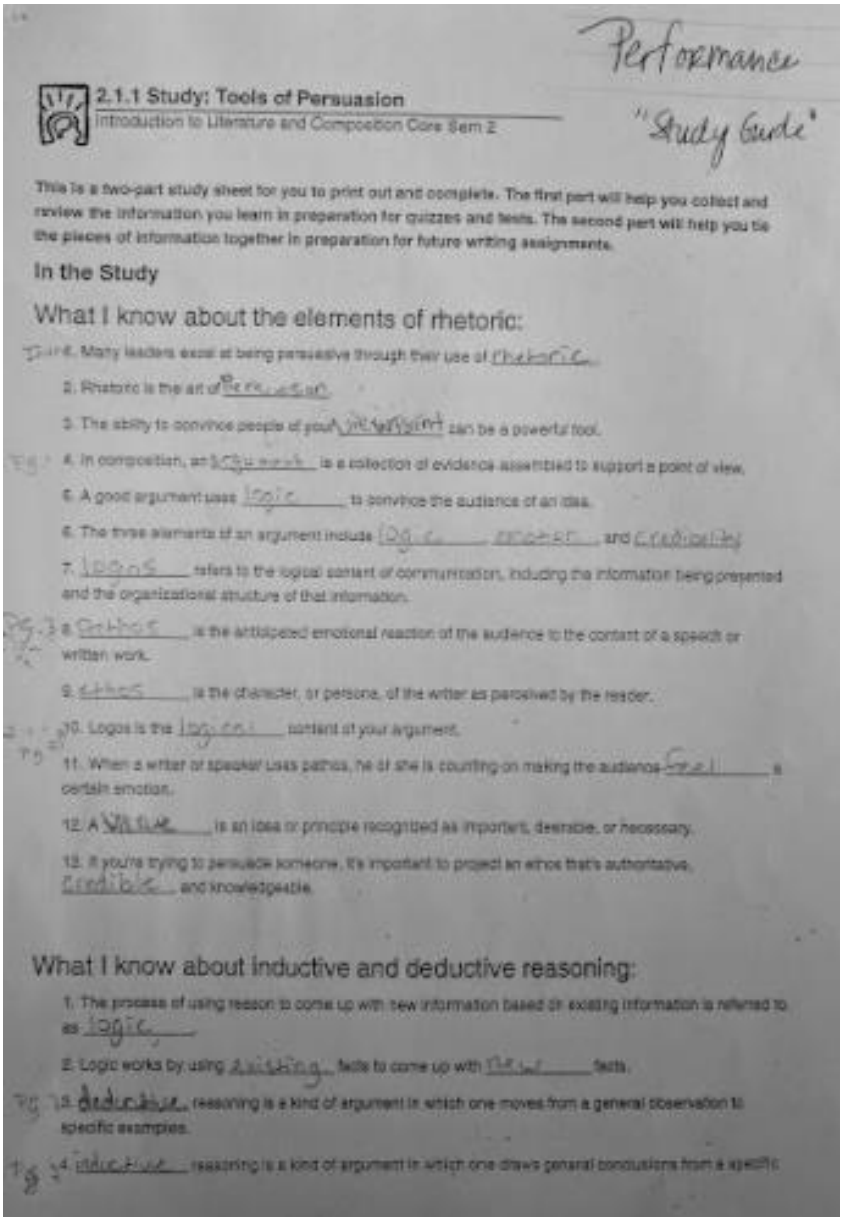
Unit	Lesson	Activity	Due Date	Date Recorde	Last Message	Score	Status	%	Possible
1. Theme Stud...	1. Life Lessons:...	1.1.2 - Quiz: Comprehendin...		29 Nov 2016		8		80%	10
1. Theme Stud...	2. Theme Study...	1.2.2 - Quiz: Comprehendin...		02 Dec 2016		8		80%	10
1. Theme Stud...	2. Theme Study...	1.2.5 - Quiz: Comprehendin...		07 Dec 2016		9		90%	10
1. Theme Stud...	2. Theme Study...	1.2.7 - Quiz: Comprehendin...		15 Dec 2016		9		90%	10
1. Theme Stud...	2. Theme Study...	1.2.8 - Practice: Short Analy...					In Progress		50
1. Theme Stud...	4. Skills Works...	1.4.4 - Quiz: Comprehendin...		04 Jan 2017		8		80%	10
2. Drama: Co...	4. Skills Works...	2.4.4 - Quiz: Comprehendin...		05 Jan 2017		8		80%	10
3. Life Skills	1. Life Skills: A...	3.1.2 - Quiz: Comprehendin...		06 Jan 2017		8		80%	10
3. Life Skills	2. Filling Out F...	3.2.2 - Quiz: Comprehendin...		09 Jan 2017		10		100%	10
3. Life Skills	2. Filling Out F...	3.2.5 - Quiz: Comprehendin...		11 Jan 2017		8		80%	10
3. Life Skills	2. Filling Out F...	3.2.7 - Quiz: Comprehendin...					In Progress		10
3. Life Skills	2. Filling Out F...	3.2.8 - Practice: Personal St...					Not Complete		50
3. Life Skills	3. Memos and L...	3.3.2 - Quiz: Comprehendin...					Not Complete		10
3. Life Skills	3. Memos and L...	3.3.4 - Quiz: Comprehendin...					Not Complete		10
3. Life Skills	4. Skills Works...	3.4.5 - Quiz: Comprehendin...					Not Complete		10
3. Life Skills	5. Life Skills W...	3.5.2 - Test (CST): Life Skills					Not Complete		20
4. Documents:...	1. Primary Sour...	4.1.2 - Quiz: Comprehendin...					Not Complete		10
5. The Novel: ...	4. Skills Works...	5.4.4 - Quiz: Comprehendin...					Not Complete		10
	Summary	Excused Points							
		Total Points				76		28%	270

Close Window

Figure 9. Apex Learning course activity report.

Three teachers submitted materials created in Apex Learning. One highly qualified teacher submitted an example of guided notes (see Figure 10) that students used when interacting with the study. The teacher indicated that guided notes provided by Apex Learning were used to help students learn the instructional material presented within the study. One teacher provided examples of practice problems (see Figure 11) from a geometry lesson that were embedded within the Apex Learning content. A third teacher submitted examples of an Apex Learning embedded writing assignments (see Figure 12) in an English 12 course. The teachers who provided practice problems and writing assignments indicated that these problems reinforced and developed content area

knowledge and skill. Both examples, guided notes and practice problems, were identified as Apex Learning content that students used during the performance phase of SRL.



Performance

"Study Guide"

2.1.1 Study: Tools of Persuasion

Introduction to Literature and Composition Core Sem 2

This is a two-part study sheet for you to print out and complete. The first part will help you collect and review the information you learn in preparation for quizzes and tests. The second part will help you tie the pieces of information together in preparation for future writing assignments.

In the Study

What I know about the elements of rhetoric:

1. Many leaders excel at being persuasive through their use of rhetoric.
2. Rhetoric is the art of persuasion.
3. The ability to convince people of your viewpoint can be a powerful tool.
4. In composition, an argument is a collection of evidence assembled to support a point of view.
5. A good argument uses logic to convince the audience of an idea.
6. The three elements of an argument include logic, emotion, and credibility.
7. Logos refers to the logical content or communication, including the information being presented and the organizational structure of that information.
8. Pathos is the anticipated emotional reaction of the audience to the content of a speech or written work.
9. Ethos is the character, or persona, of the writer as perceived by the reader.
10. Logos is the logical content of your argument.
11. When a writer or speaker uses pathos, he or she is counting on making the audience feel a certain emotion.
12. A value is an idea or principle recognized as important, desirable, or necessary.
13. If you're trying to persuade someone, it's important to project an ethos that's authoritative, credible, and knowledgeable.

What I know about inductive and deductive reasoning:

1. The process of using reason to come up with new information based on existing information is referred to as logic.
2. Logic works by using building facts to come up with new facts.
3. deductive reasoning is a kind of argument in which one moves from a general observation to specific examples.
4. inductive reasoning is a kind of argument in which one draws general conclusions from a specific

Figure 10. Apex Learning guided notes.

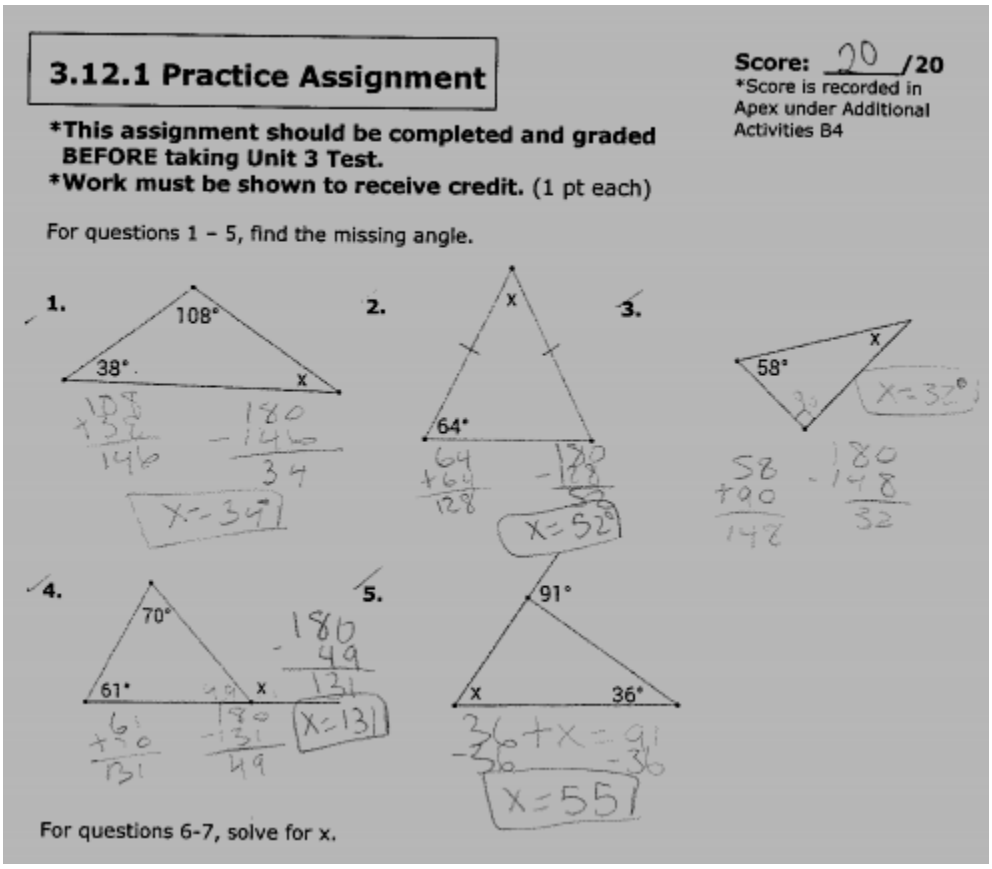
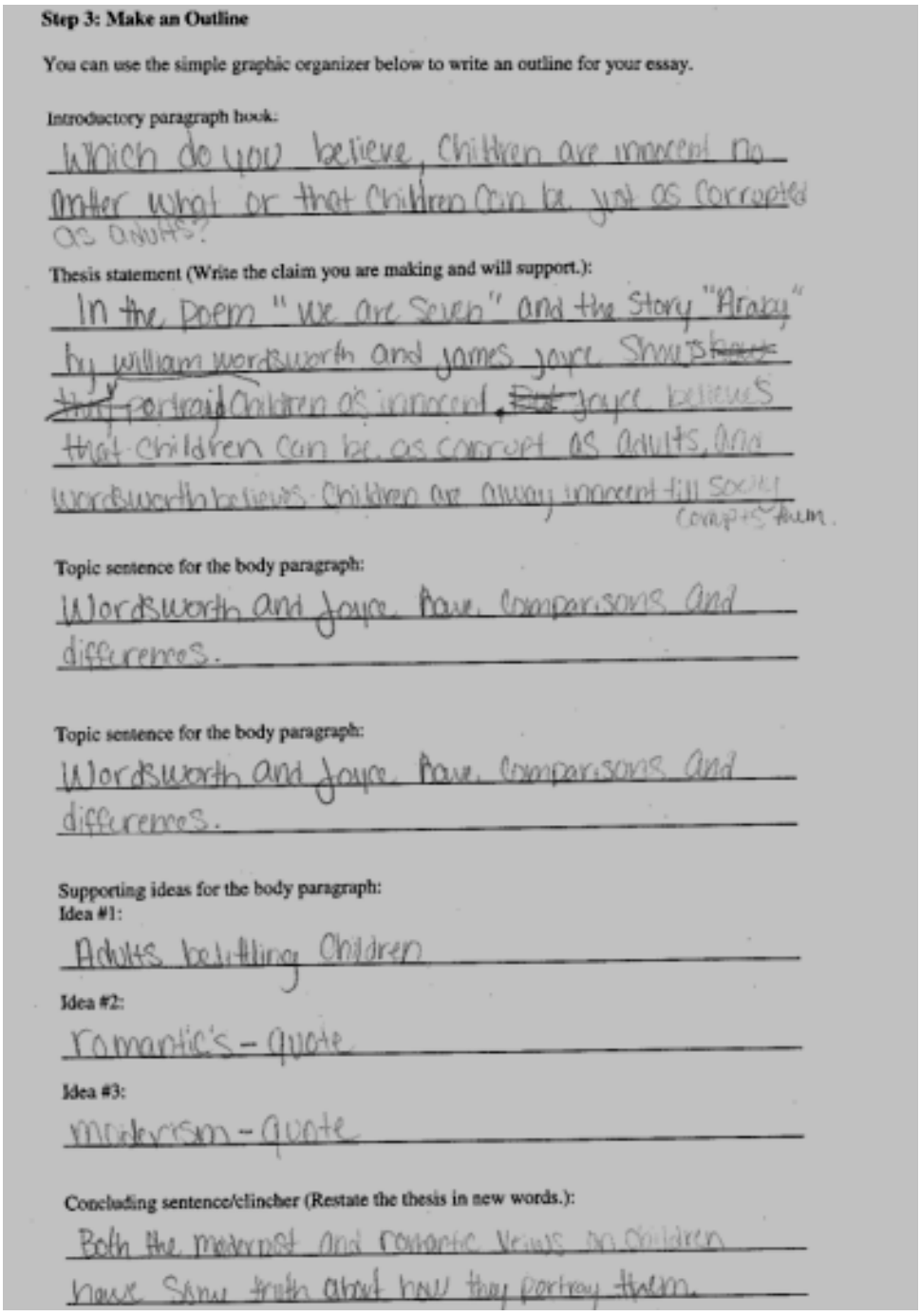


Figure 11. Apex Learning course practice problems.



Step 3: Make an Outline

You can use the simple graphic organizer below to write an outline for your essay.

Introductory paragraph hook:

Which do you believe, Children are innocent no matter what or that Children can be just as Corrupted as Adults?

Thesis statement (Write the claim you are making and will support.):

In the Poem "We are Seven" and the Story "Araby" by William Wordsworth and James Joyce. Shows ~~they~~ portrayal Children as innocent. ~~But~~ Joyce believes that children can be as corrupt as adults. And WordSworth believes Children are always innocent till Society Corrupts them.

Topic sentence for the body paragraph:

Wordsworth and Joyce. Have. Comparisons and differences.

Topic sentence for the body paragraph:

Wordsworth and Joyce. Have. Comparisons and differences.

Supporting ideas for the body paragraph:

Idea #1:

Adults belittling Children

Idea #2:

Romantic's - Quote

Idea #3:

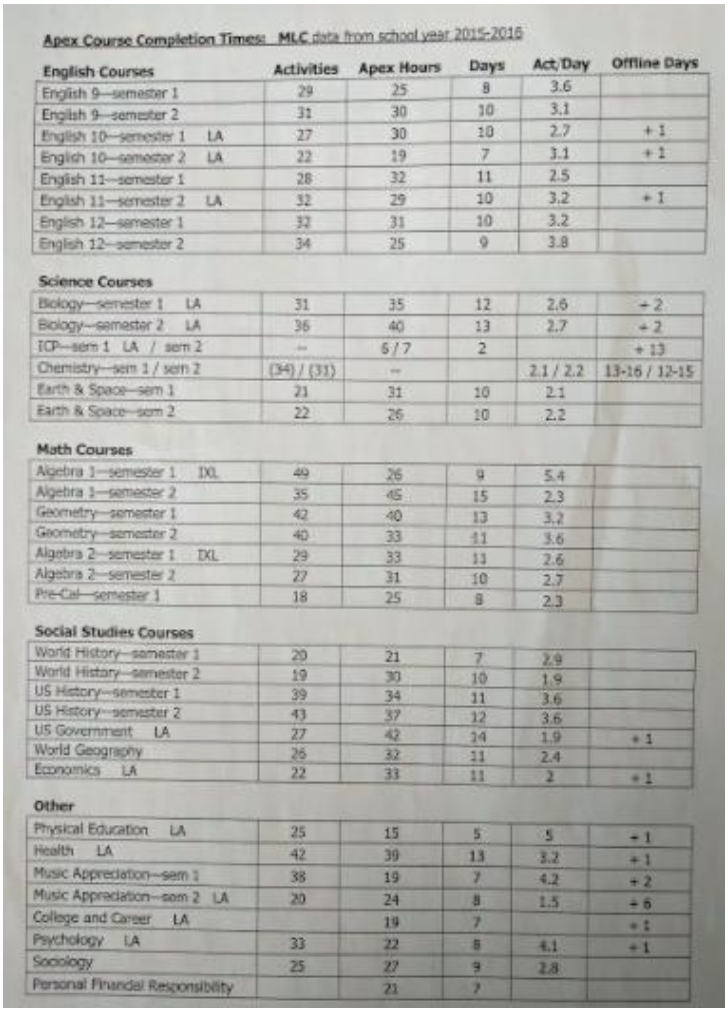
Modernism - Quote

Concluding sentence/clincher (Restate the thesis in new words.):

Both the modernist and romantic Views on Children have Some truth about how they portray them.

Figure 12. Apex Learning course writing assignment.

T5 provided an internal artifact used as a student pacing guide (see Figure 13). According to the teacher, the Apex Learning course activity report and alternative education's pacing guided were used together in the forethought and evaluation phases.



Apex Course Completion Times: MLC data from school year 2015-2016

English Courses	Activities	Apex Hours	Days	Act/Day	Offline Days
English 9—semester 1	29	25	8	3.6	
English 9—semester 2	31	30	10	3.1	
English 10—semester 1 LA	27	30	10	2.7	+ 1
English 10—semester 2 LA	22	19	7	3.1	+ 1
English 11—semester 1	28	32	11	2.5	
English 11—semester 2 LA	32	29	10	3.2	+ 1
English 12—semester 1	32	31	10	3.2	
English 12—semester 2	34	25	9	3.8	
Science Courses					
Biology—semester 1 LA	31	35	12	2.6	+ 2
Biology—semester 2 LA	36	40	13	2.7	+ 2
ICP—sem 1 LA / sem 2	--	6 / 7	2		+ 13
Chemistry—sem 1 / sem 2	(34) / (31)	--		2.1 / 2.2	13-16 / 12-15
Earth & Space—sem 1	21	31	10	2.1	
Earth & Space—sem 2	22	26	10	2.2	
Math Courses					
Algebra 1—semester 1 IXL	49	26	9	5.4	
Algebra 1—semester 2	35	45	15	2.3	
Geometry—semester 1	42	40	13	3.2	
Geometry—semester 2	40	33	11	3.6	
Algebra 2—semester 1 IXL	29	33	13	2.6	
Algebra 2—semester 2	27	31	10	2.7	
Pre-Cal—semester 1	18	25	8	2.3	
Social Studies Courses					
World History—semester 1	20	21	7	2.9	
World History—semester 2	19	30	10	1.9	
US History—semester 1	39	34	11	3.6	
US History—semester 2	43	37	12	3.6	
US Government LA	27	42	14	1.9	+ 1
World Geography	26	32	11	2.4	
Economics LA	22	33	11	2	+ 1
Other					
Physical Education LA	25	15	5	5	+ 1
Health LA	42	39	13	3.2	+ 1
Music Appreciation—sem 1	38	19	7	4.2	+ 2
Music Appreciation—sem 2 LA	20	24	8	1.5	+ 6
College and Career LA		19	7		+ 1
Psychology LA	33	22	8	4.1	+ 1
Sociology	25	27	9	2.8	
Personal Financial Responsibility		21	7		

Figure 13. Course completion times.

The document in Figure 13 was created by analyzing student data from the previous school year. A staff member calculated the average number of hours required to complete each Apex Learning course based on all students who earned a credit per

course. The pacing guide broke down the course data into smaller chunks. More specifically, the data was broken down into the number of activities to be completed per day to complete the course within the average time.

Summary of RQ3

RQ3 asked teachers to identify student-to-content interaction that encouraged students to engage in behaviors in each phase of SRL. Teachers were given multiple selection questions to identify Apex Learning activity types and built-in/opt-in supports for self-regulation. To earn course credit, students were required to complete all tasks associated with the Apex Learning activity types. T1, T2, T3, T4, and T5 selected both quizzes and computer-scored tests as activity types students used across all phases of SRL. Teachers noted the use of practice problems to support performance and evaluation; the Apex Learning study was selected as a source of student interaction during the performance phase of SRL.

Teachers were asked to submit artifacts that corroborated their activity type selections. Teachers submitted examples of Apex Learning student materials: guided notes, practice problems, and writing assignments. Students used these materials when actively engaged in learning, and thus these materials supported the performance phase of SRL. Additionally, teachers indicated that students were permitted to use these materials while completing a quiz or test to verify their answer choice.

Three teachers submitted student calendar artifacts along with an Apex Learning course activity report and, in one case, the program's pacing guide and syllabus for

English 10–Semester 2. The calendar, activity reports, and pacing guide are used together to help students create a strategic plan and set daily goals to accomplish. Teachers' selection choices indicated that these materials helped during the forethought and evaluation phases of SRL.

The selection of built-in/opt-in supports produced interesting results. There are two types of built-in/opt-in supports—strategic and adaptive. Strategic scaffolds are intended to help students increase their understanding of grade-level content. Examples of strategic scaffolds were drag-and-drop activities, my progress reports, navigation bar, and read/respond activities. Adaptive scaffolds provided students with alternative ways to consume content. Examples of adaptive scaffolds were animations/slideshows, appendix A resources, read aloud supports, transcript icon, and vocabulary supports. The results suggested adaptive content scaffolds supported behaviors associated with performance, while strategic content scaffolds promoted behaviors associated primarily with performance and evaluation.

RQ4

RQ4 asked teacher to describe how the student-to-teacher interactions promote SRL habits students need in a CBLE. These interactions were described as the academically-focused conversations occurring between the individual students and the teacher (Abrami et al., 2011; Bol & Garner, 2011). The open-ended responses from questions 7–9 from the Interacting with Apex Learning Content – Part I questionnaire were analyzed. I organized the open-ended responses by teacher and by SRL phase. The

teachers were asked to describe observable behaviors that demonstrated a student was engaged in SRL.

Student Calendars

In every phase of SRL, the teachers referenced the use of student calendars. Teachers indicated that students were taught to create a daily calendar. T2 said, "students fill out their calendars in ways that reflect they understand the rate they'll need to work to complete a unit/course; students cross off tasks/quizzes upon completion and adjust calendar as needed."

T2 also indicated that student calendars were used to provide instruction during performance. T2 said: "They (students) check their calendars, adjust calendar if ahead or behind schedule, use time well by staying focused on the work, and ask for help when needed." The student behavior indicated they were actively engaged in self-observation as they record and analyze their progress.

During the evaluation phase, two teachers made specific references to the use of student calendars. T3 stated that students used the calendar to evaluate their overall performance. T3 said: "Students will use the APEX progress to determine if they have completed two quizzes a day. They can also use their calendar to determine this achievement and determine how many credits they earn each month." Figure 14 shows the first example of a student-created calendar.

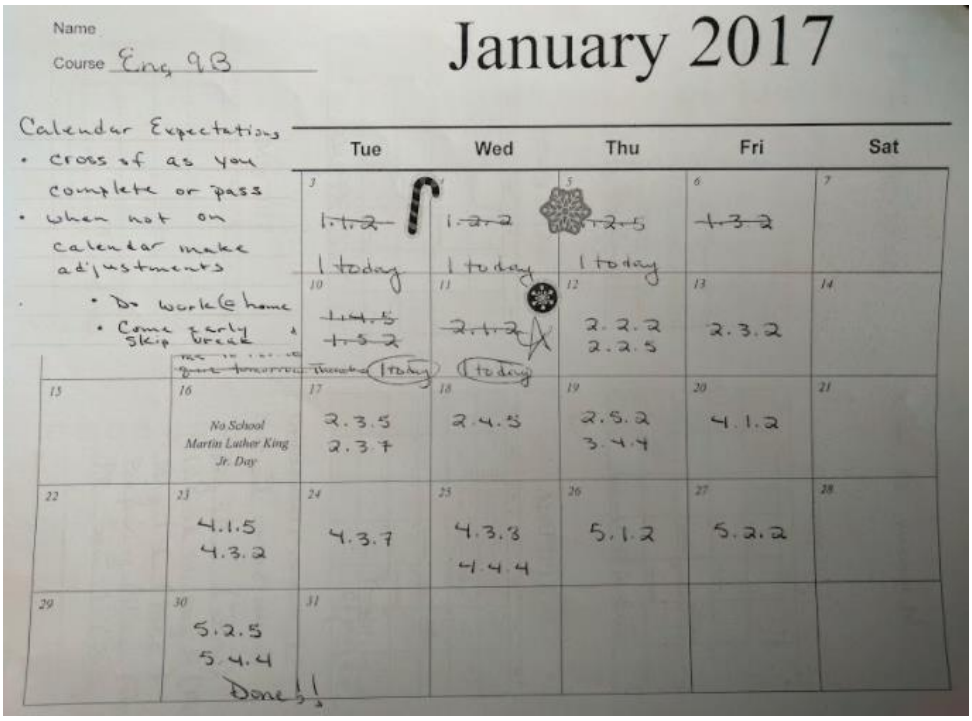


Figure 14. Student calendar: Example 1.

The student calendar in Figure 14 was submitted by a teacher and provided insight on the way student calendars support SRL. Under the course title at the top of the page, the teacher wrote the expectations regarding how to use the calendar to set course completion goals. The expectation of progress monitoring was stated as "cross off as you complete or pass." The teacher encouraged the student to evaluate his or her progress by emphasizing the importance of "making adjustments." The next student calendar, shown in Figure 15, shows a slightly different approach.

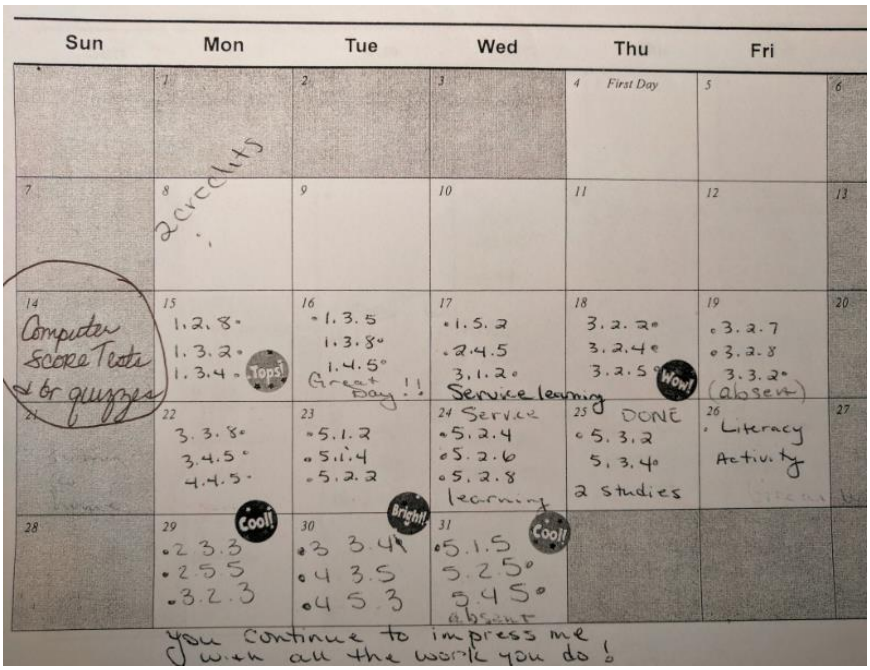


Figure 15. Student calendar: Example 2.

Figure 15 was submitted by a teacher. In the bottom margin, the teacher provided the student with feedback. Based on the remarks, the student has progressed through the course as prescribed by the calendar. The numbers appearing on each day, for example, 2.3.3, represent the unit (2), lesson (3), and activity (3) found within the Apex Learning content. More specifically, the last number in the series represents computer-scored test, quizzes, practice problems, and/or writing assignments.

Apex Learning Course Materials

Evidence submitted by one teacher showed that students were encouraged to use Apex Learning guided notes, math practice problems, and writing assignments. In RQ3, the group of teachers collectively indicated that students used the materials during the performance and evaluation phases. Two teachers referenced the use of course materials

when describing observable behaviors during performance for RQ4. T1 stated that students were encouraged to write page numbers on the course materials because the annotation would “help them find answers when taking quizzes.” T4 indicated “using the feedback from a quiz attempt and doing the example problems in math” as another example of observable behaviors during performance.

In Figure 16, a student provided written page numbers next to key vocabulary in an English lesson. In addition, the student referenced either a computer-scored test or quiz next to question 10. Students annotated their guided notes during performance to help navigate the Apex Learning content. Two teachers referenced the use of the student calendar as a tool they used to encourage students to monitor their progress. T2 shared that students are taught to “check their calendars; adjust their calendar if ahead or behind.” T4 referenced that students who used their calendars properly “can tell you a date on when they will complete a course” and “students compare their calendar to their Apex progress.” Figure 16 shows a close-up of a student’s guided notes.

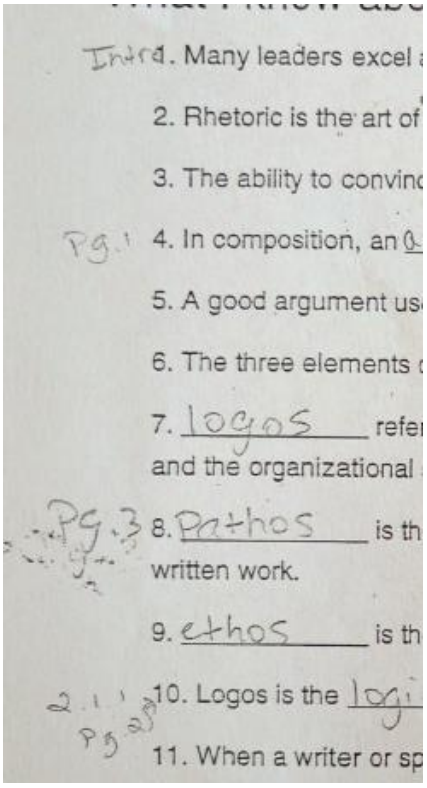


Figure 16. Apex Learning guided notes.

In Figure 17, the third student calendar example was submitted by one of the alternative education teachers. Based on the teacher descriptions, this student demonstrated that he or she could provide the teacher with a specific course completion date for US government class. Teachers also indicated the student calendar was a valuable tool to encourage evaluation. T5 stated students "engaged in learning, check off completed activities on their calendar." T2 shared that the calendar is examined to determine whether the student made judgements about their performance.

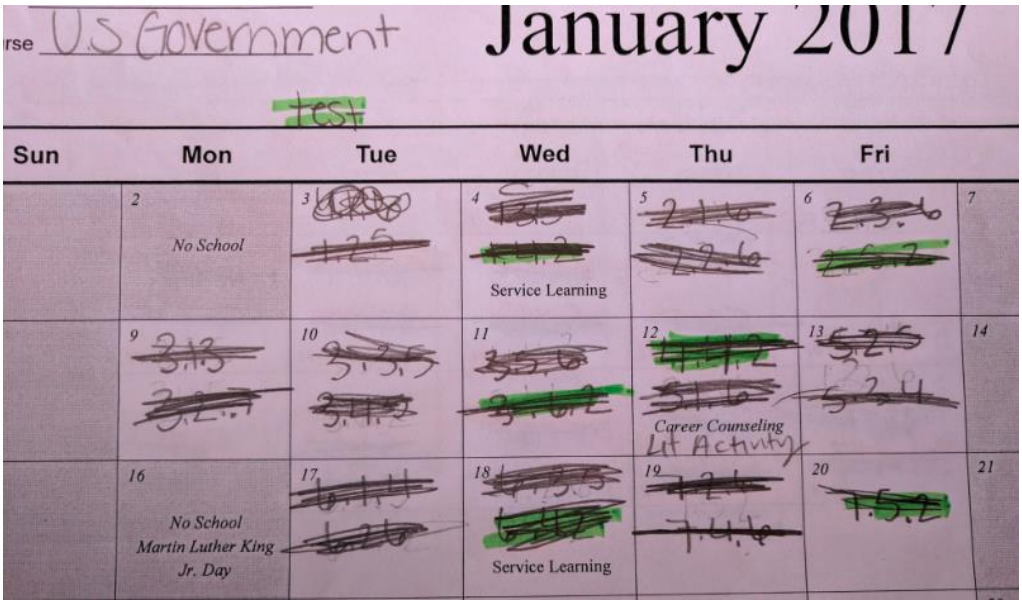


Figure 17. Student calendar: Example 3.

Quiz Review

When asked about observable student behaviors associated with the evaluation phase of SRL, teachers referenced the use of quiz review sheets. Three teachers submitted examples of their quiz review sheets in their yellow folders. T2 referenced the quiz review sheet during the performance phase; however, most teachers indicated the quiz review encouraged students to engage in evaluative behaviors.

One open-ended response provided a clear description of when the quiz review was used in the CBLE. T1 said the quiz review is used when "they do not earn 80% on quiz by the third attempt"; T2 shared that students were taught to "raise their hand when they fail" and "listen to and ask questions of us" (teachers) to identify their thinking error and/or mistake. T2 also indicated that students were encouraged to think about the

strategy they used to complete a task to determine whether the strategy was useful or used properly.

As I examined the artifacts, I noted that the quiz review sheets promoted the use of two phases of SRL, performance and evaluation. The open-ended responses supported this notion. Figures 18–21 represent examples of quiz review sheets provided by teachers.

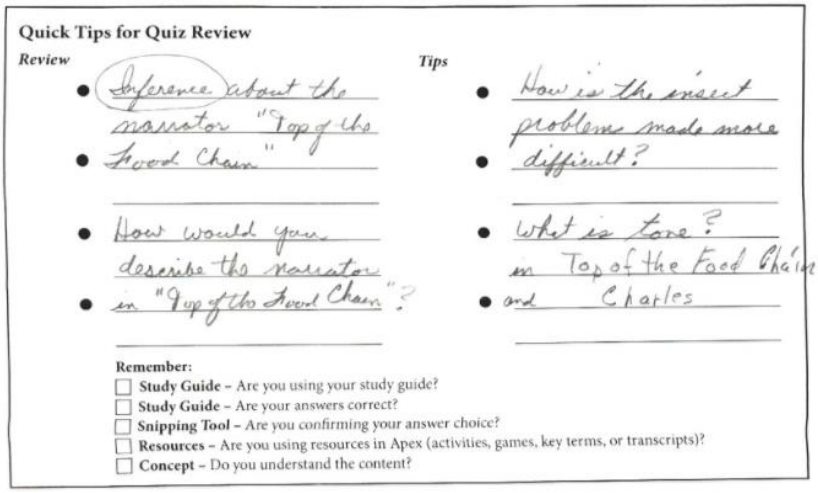


Figure 18. Quiz review sheet: Example 1.

In Figure 18, the teacher encouraged the student to think about the use of "inferences" to frame the context in which a narrator discusses food chains.

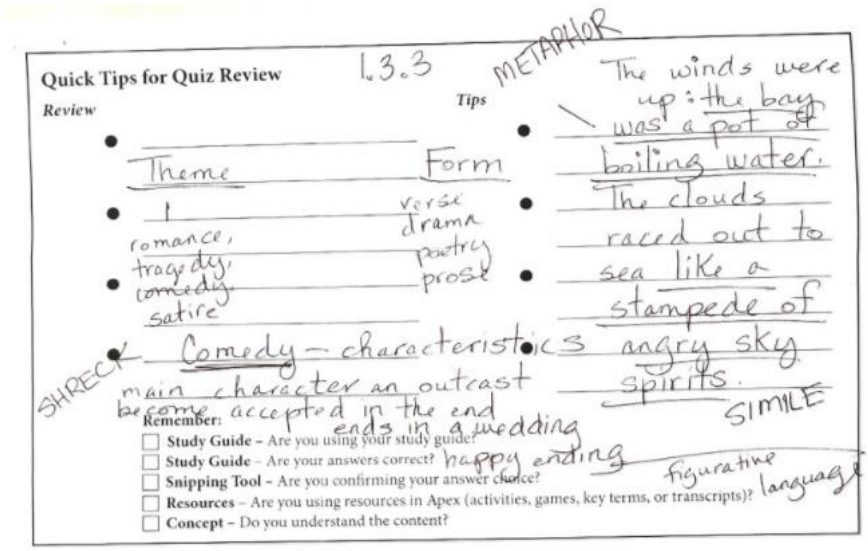


Figure 19. Quiz review sheet: Example 2.

In Figure 19, the teacher prompted the student to reflect on his or her knowledge of theme, form, and comedy. The teacher also provided a tangible example of a metaphor and a relevant example of the movie *Shrek*.

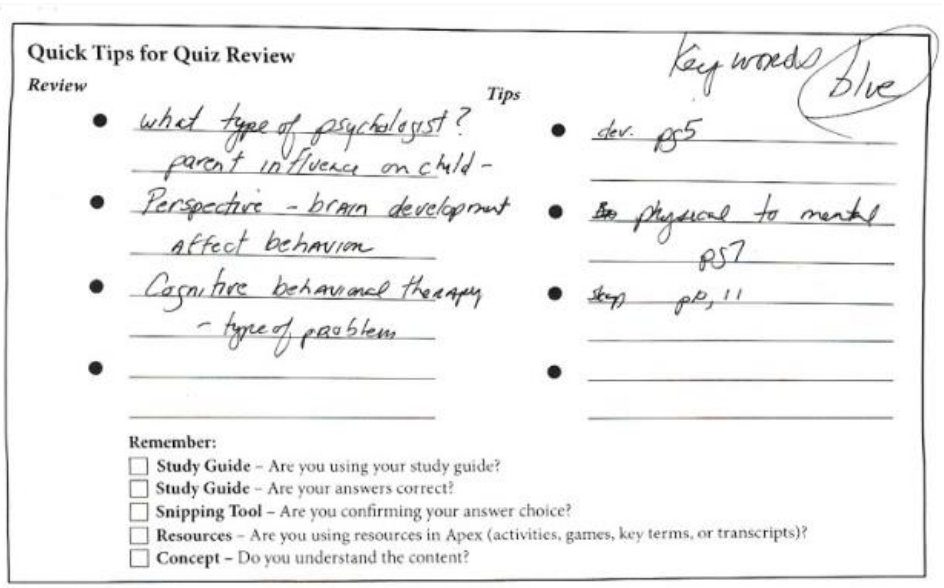


Figure 20. Quiz review sheet: Example 3.

In Figure 20, the teacher prompted the students to pay attention to important vocabulary in the Apex Learning content. The teacher referred to specific page numbers in the study and attempted to draw attention to the key words (which were in blue in the lesson).

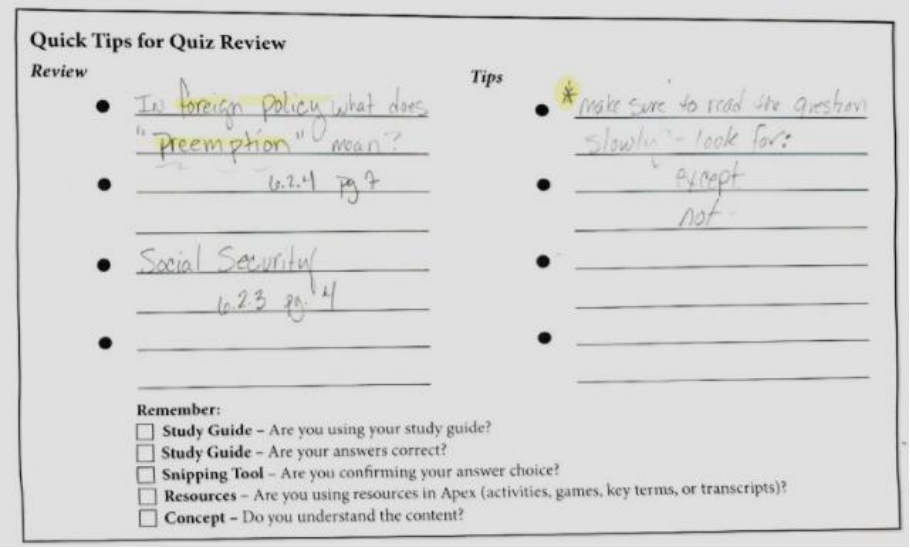


Figure 21. Quiz review sheet: Example 4.

In Figure 21, the teacher encouraged the student to use a test-taking strategy. The teacher stated, “Read the question slowly” and watched for words that changed the context of the question, such as “except” and “not.”

Graduation Outline and Long-Range Plan

Three teachers submitted student goal-setting packets containing a graduation outline, a long-range plan, a semester plan, and a daily calendar. The graduation outline provided teachers and students with an overview of credits earned and credits needed to graduate from high school. Teachers and students collaborated to develop a long-range plan for the school year followed by a plan for the semester. The teachers instructed students how to set daily goals with the use of a monthly calendar. Figures 22–26 show examples of the tools that they used to teach forethought and evaluation.

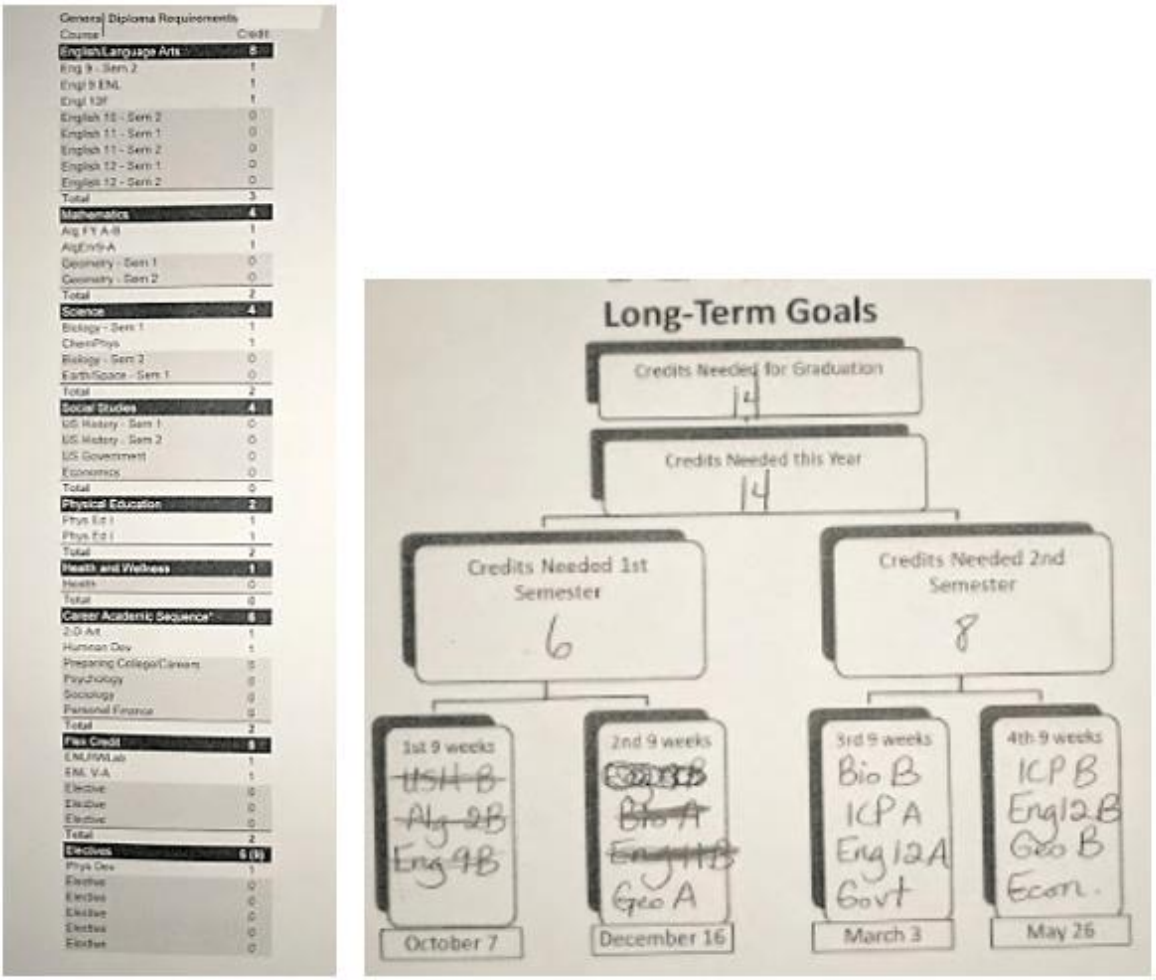


Figure 22. Graduation outline and long-term goal documents.

Figure 22 showed sample documents provided by three teachers. The document (left) showed a graduation outline for a specific student. The document (right) showed an internal document used by teachers to encourage students to create a strategic plan.

Figure 23. Semester plan document.

Figure 23 shows a sample document provided by three teachers; they described the documents as a semester plan. An important notation appeared in the lower right-hand column. Here, the teacher encouraged the importance of forethought, performance, and evaluation.

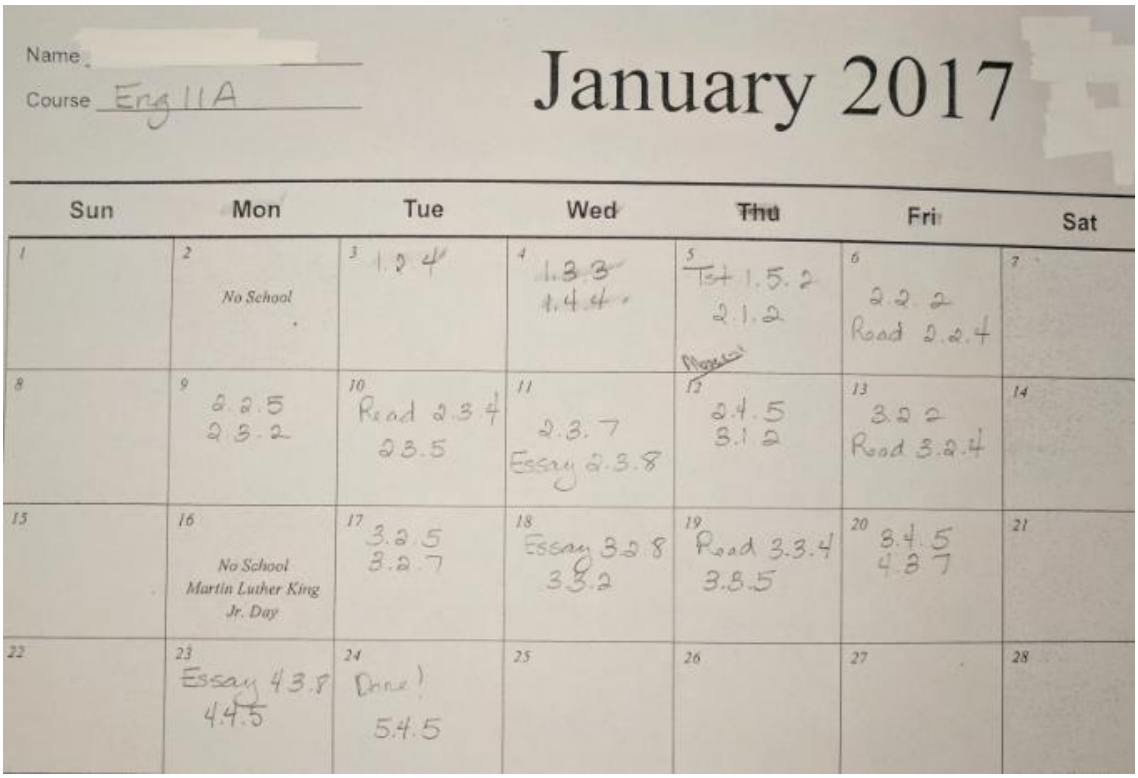


Figure 24. Student calendar: Example 4.

Figure 24 is another example of a student calendar. This calendar was provided by the teacher with the semester plan shown earlier in Figure 22.

English 10 - Semester 2	
1.1.2	Quiz - Comprehending the Study
1.2.2	Quiz - Comprehending the Study
1.2.4	Reading - Short Answer Questions
1.2.5	Quiz - Comprehending the Study
1.2.7	Quiz - Comprehending the Study
1.2.8	Essay - Short Analysis
1.4.4	Quiz - Comprehending the Study
2.4.4	Quiz - Comprehending the Study
3.1.2	Quiz - Comprehending the Study
3.2.2	Quiz - Comprehending the Study
3.2.4	Reading - Short Answer Questions
3.2.5	Quiz - Comprehending the Study
3.2.7	Quiz - Comprehending the Study
3.2.8	Essay - Personal Statement
3.3.2	Quiz - Comprehending the Study
3.3.3	Reading - Short Answer Questions
3.3.4	Quiz - Comprehending the Study
3.4.5	Quiz - Comprehending the Study
3.5.2	Test (CST) - Comprehending the Studies
4.1.2	Quiz - Comprehending the Study
5.4.4	Quiz - Comprehending the Study
Literacy Activity	

Figure 25. Syllabus English 10 – Semester 2.

Figure 25 was submitted by a teacher as an example of the number of activities students were required to complete to earn a credit in English 10 – Semester 2. Teachers showed students how to create a calendar using the average course completion times (refer to Figure 13) and number of activities per course (see Figure 25). According to Figure 13, shown earlier, the average student completed English 10 – Semester 2 in 7 days when they completed 3.1 activities per day. Teachers indicated that they used the goal-setting/planning process (forethought) to help students develop time-management skills specific to the daily calendar. Teachers also shared all documents (see Figures 22–

25) that were used in combination to teach students how to evaluate their progress in achieving their long-range plan, semester plan, and daily calendars.

Instructional Tools

RQ2 asked teachers to identify ways they encouraged students to use SRL skills. Upon analysis, I categorized the data into instruction and tools. I discussed commonly used tools in the previous section. Teachers identified a few phrases that they associated with instruction of SRL. These phrases appeared in Tables 15–17 and included key terms, text structure, purpose of reading, looking up answers, confirming answer choice, and think through the problems.

I asked teachers to provide examples of artifacts that were used to support instruction of SRL. Two teachers provided examples of the same document in their yellow folders. The two teachers indicated that the document contained an instructional strategy. Interacting Apex Learning Content – Part I asked teachers to discuss observable student behaviors that indicated a student was engaged in SRL; T5 concluded that students engaged in the performance phase would "interact with the Apex Learning curriculum, check off completed activities on their calendar, and use the snipping tool."

The snipping tool, a Microsoft Windows screenshot tool, is shown in Figure 26. Teachers indicated that student were encouraged to use the snipping tool while completing Apex Learning activities, such as computer-scored tests, practice problems, and quizzes. The snipping tool was used in conjunction with the thinking steps that teachers taught them to use during task completion, as outlined in Figure 26. Students at

risk of dropping out often struggled with key reading strategies, such as sorting relevant content from irrelevant content; thus, the alternative education teachers indicated that students could use the snipping tool to take a screenshot of a question within the Apex Learning content.

Figure 26. Instructional tool.

As I reviewed the data for RQ2, I noticed that teachers used phrases such as purpose for reaching and connecting key words. The document that two teachers provided linked these key phrases to an instructional strategy called PACE. Figure 27 shows the PACE acrostic. Teachers indicated that PACE was a reading strategy developed by staff based on the Question-Answer Relationship (QAR) strategy used by teachers in traditional classrooms.

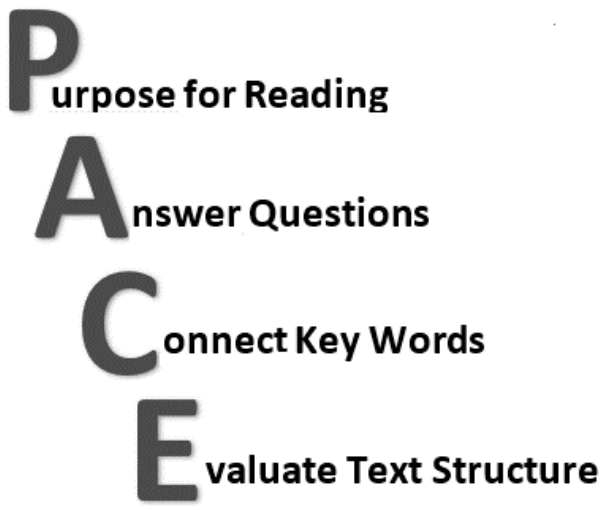


Figure 27. Acrostic for a performance instructional strategy.

The Providing Self-Regulated Learning Instruction asked teachers to provide a description of how they provide SRL instruction. T5 said, "talk to students about purpose for reading and evaluating text structure . . . identify questions type by focusing on thinking . . .and use key terms to find answers" to encourage forethought. More specifically, the use of the PACE strategy helped students activate their prior knowledge.

One teacher supplied additional artifacts related to the PACE strategy. One teacher discussed the use of the PACE strategy to promote the performance phase. As indicated in Figure 26 and Figure 27, the PACE strategy also encouraged students to navigate the content in Apex Learning more effectively and efficiently, as well as encouraged students to develop thinking steps. The behaviors identified by the teachers were connected to the performance phase.

Teachers indicated the PACE strategy also helped students examine information to determine what is understood or not understood and helped students identify the most

useful content information. T1 linked the PACE strategy to the evaluation phase of SRL. The PACE strategy promoted self-checking behaviors as well. T1 noted PACE encouraged students to "find evidence to support the answer." This action caused students to employ metacognition strategies to ask themselves: "Does this answer make sense?"

Summary of RQ4

RQ4 asked teachers to describe their academically focused conversations with students and how these interactions encouraged students to engage in SRL. Teachers provided examples of internal documents they used to guide their interactions with students. The open-ended responses from the Providing SRL Instruction questionnaire indicated that students were taught how to create a daily calendar. Students were also taught how to monitor their program by crossing off the Apex Learning activity types identified on the course syllabus sheet or within the course activity reports found in my progress reports. These student-to-teacher interactions encouraged students to engage in forethought (i.e., goal setting and strategic planning) and performance (i.e., attending to task and time management).

Apex Learning provided resources that the certified teachers used within each course offering. Teachers provided instruction on how to annotate and use these materials to increase their performance. Materials most commonly used were guided notes. In addition, teachers provided examples of instructional strategies, such as PACE, which taught students how to navigate/interact with the Apex Learning content efficiently and

effectively. More specifically, the E in PACE directed students' attention to specific areas within Apex Learning such as the navigation outline, headings, key terms, and built-in/opt-in support tools (i.e., transcript icon). This student-to-teacher interaction encouraged students to increase their performance.

Teachers identified another tool, quiz review sheets, that provided students with specific academic feedback designed to promote behaviors in all three phases of SRL. The quiz review sheets were provided to a student after they had failed an assessment. As noted in Figures 18–21, these review sheets helped students activate prior knowledge (forethought), develop thinking steps (performance), search the text (performance), monitor progress (performance), find useful information (evaluation), and identify content that was understood or not understood (evaluation).

Teachers indicated that students were taught the test-taking strategy of using the snipping tool and four-part thinking strategy (see Figure 26) to maneuver through four thinking steps instead of guessing. Teachers provided students with instruction on how to use the other Apex Learning tools (guided notes, online content, and practice problems) in conjunction with the snipping tool and thinking strategy to increase their performance while learning.

Three teachers provided student goal-setting packets that contained a graduation outline, long-term plan, semester plan, and student calendar. Teachers used these materials to teach students how to set daily goals. These packets were also used to teach students how to plan strategically (forethought) and how to track and monitor progress

toward a goal using the long-term plan and semester plan (evaluation). Interestingly, teachers also referenced the use of student calendars and the long-term plan/semester plan when asked to describe their academically focused conversations around performance.

Summary

Chapter 4 provided a summary of the study results. Teachers identified the following SRL behaviors as most essential: goal setting, strategic planning, managing time, monitoring strategy use, developing thinking steps, and making self-judgements. Teachers used the following Apex Learning content structures to help deliver instruction: computer-scored tests, quizzes, study material, and practice problems. Teacher used the following built-in/opt-in supports when providing SRL instruction: animations/slideshows, my progress report, drag-and-drop activities, read/respond activities, read aloud supports, vocabulary supports, and the navigation bar. This was corroborated by comparing teacher responses from the researcher-designed questionnaires and the submitted artifacts. In Chapter 5, I will provide an interpretation of my findings and describe how the findings were supported by the review of literature in Chapter 2. I also will provide a description of the study's limitations and make recommendation on how the study could be repeated in another alternative education program. Lastly, I will describe how my study could positively influence positive student outcomes in other alternative education programs around the state.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of my study was to describe how student-to-teacher interactions encourage students to enact SRL behaviors before, during, and after learning. I conducted a case study within an alternative education program; the certified teachers served as multiple units of analysis within the representative case. The alternative education program served as an educational setting for at-risk high school students. The program functioned as a CBLE; the program's' curriculum consisted of high school core and elective curriculum purchased from Apex Learning. The highly qualified teachers organized the digital curriculum to support students academically as they complete high school diploma requirements. Research has shown a correlation between student achievement and effective use of SRL strategies (Zimmerman, 2002); however, there remains a limited number of SRL studies in authentic learning environments (Rosen et al., 2009). Moreover, there is limited research on how teachers provide SRL instruction when working with students in a CBLE.

Academic success of all students, especially those at risk of leaving school prior to graduation, is influenced by their ability to regulate their actions, behaviors, and thoughts to complete an academic task (Zimmerman, 2002). I used Zimmerman's social cognitive theory of SRL as the theoretical framework to examine interactions within a CBLE as a system, thereby enabling other educational technologists to describe student-to-teacher interactions that positively influence the use of SRL habits for struggling students.

The results of my study indicated that T1, T2, T3, T4, and T5 provided instruction to support student learning. Teacher participants provided evidence of how they delivered instruction to their students. Figures 18 – 22 showed that T1, T2, T3, T4, and T5 provided instruction to develop students' content knowledge, as well as retaught misunderstood curricular concepts. Figure 26 and 27 showed that teachers delivered instruction to prompt students to demonstrate how students should utilize resources to improve performance or how to think. These skills are foundational in learning how to self-regulate to accomplish any task.

Teachers taught students goal setting, strategic planning, managing time, and self-monitoring. The teachers provided artifacts and referenced goal-setting/strategic planning materials (student calendars, semester calendars, long-term plans) to help drive productivity. The program's goal-setting techniques emphasized the relationship between success and effort. The students who bought in to goal setting became more engaged in their work. Engaged students interacted with their calendars by crossing off their daily accomplishments and writing notes of encouragement to themselves. This indicated that they took ownership of their learning. These SRL behaviors reinforced the students' level of motivation and efficacy, thereby increasing students' SRL behaviors.

Interpretation of the Findings

In the state, alternative education programs serve more than 18,000 students in grades 6-12 every year (J. Johns, personal communication, January 18, 2017). Each program has a singular purpose, to address the student population the program serves.

Research is needed to examine the programs' practices and to ensure at-risk students have access to equitable and quality programs. Many alternative education programs use online or blended learning to employ credit recovery options and use competency-based learning for at-risk students (Barnett, 2016; Watson et al., 2011). Students with academic deficiencies not only benefit from the approach but also benefit from face-to-face support. Teachers at alternative education programs provide scaffolding and serve as a source of student motivation, which otherwise deteriorates over time (Fryer & Bovee, 2016). The literature review served as a guide to answer the four research questions. Throughout data analysis, I found myself using the research to identify whether certain environmental conditions, teacher beliefs, and instructional practices existed in the CBLE.

Context of the Learning Environment

Within the alternative education program, students worked independently to complete coursework to earn a high school diploma. As in any classroom, they engaged in learning or completing an assignment to move in and out of each phase of SRL. The students' actions, behaviors, and thoughts are influenced by their personal attributes, such as efficacy, engagement (outward motivation), and volition (Zimmerman et al., 2017). Amotivated and/or disengaged students doubt their academic ability. Teachers become a critical component for academic success. In my study, questionnaire responses from highly qualified teachers indicated the CBLE possessed conditions that positively influence achievement of at-risk students:

- The graduation rate of the program increased over 3 consecutive years.
- Self-paced and accelerated learning opportunities are available using computer-based instruction (Apex Learning).
- Achievement is measured through competency or mastery-based learning.
- Instruction is facilitated by a teacher rather than directed by a teacher.
- Academic feedback is aligned to student need and is purposeful, specific, and timely (e.g., instructional practices; Barnett, 2016; Barr & Parrett, 2001; Brophy, 2010; Schunk, 2008; Watson et al., 2011)).

Self-Regulated Learning Instruction

In any classroom, the teacher is responsible for designing learning experiences for students. Teachers spend a great deal of time planning lessons according to the academic standards set forth by the state department of education. In a CBLE, the role of the teacher changes from directing learning to facilitating learning. In the traditional classroom, teachers direct learning by identifying lesson objectives, developing activities and materials, and creating ways to assess student understanding. Conversely, a CBLE uses computer-based instruction and the digital curriculum allows the teacher to focus on the individual needs of students; no longer does the teacher need to devote hours to planning lessons because companies like Apex Learning have already done the work. Teachers now have the ability to focus on how students interact with the content. Also, teachers may focus on environmental conditions to support motivational and social-

emotional needs of their students. In the study, the learning environment was structured around a facilitative teaching role.

Students developed SRL strategies when their teachers explicitly taught a SRL strategy. With respect to SRL, explicit instruction likely produced positive learning outcomes because the teacher actually provides the student with a metacognitive SRL prompt. In my study, I found two instances when teachers provided explicit instruction via a metacognitive prompt.

Spruce and Bol (2015) connected teachers' instructional delivery to their beliefs about and knowledge of SRL strategies. Teachers in my study demonstrated they possessed more instructional strategies to support the performance phase of SRL than the phases of forethought and evaluation. Figure 28 shows the most essential SRL behaviors, two forethought behaviors, four performance phase behaviors, and two evaluation phase behaviors.

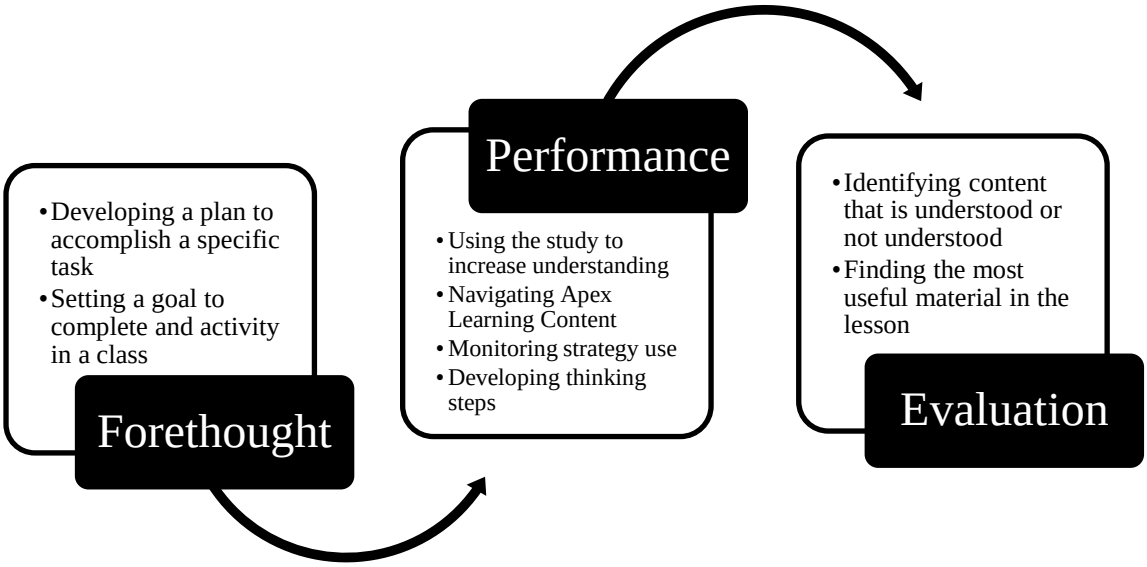


Figure 28. Essential self-regulated learning behaviors.

In the computer-based alternative program, students worked independently to complete activities found within the digital curriculum. Students earned credits when they completed all the activities in the course syllabus. The students received a workbook for each course that contained support materials provided by Apex Learning. Activities were dependent on the course and included items such as guided notes, practice problems, reading assignments, and writing activities. At times, students struggled to complete workbook activities. Some students had a low Lexile and/or struggled to find relevant information. Other times, students had not developed the background knowledge required to construct meaning. Others yet became overwhelmed by the nonlinear content and did not know where to find relevant material.

To ensure positive outcomes, the student-to-teacher interactions were critical for strategy development. Study results showed teachers developed instructional practices

around two interactions, student-to-content and student-to-teacher. The results did not show evidence of a third type of interaction, student-to- student (Bernard et al., 2009). Conversations emphasized how to navigate through the Apex Learning content or how to use the built-in/opt-in supports within the lesson. My study identified four instructional practices developed by T1, T2, T3, T4, and T5 that supported SRL: long-range plan for graduation, PACE, think through the problem, and quiz review. These instructional practices taught students how to regulate their learning with the assistance of Apex Learning activity types and built-in/opt-in supports. Figure 29 shows each phase of SRL in the context of the tools teachers used to support their instruction.

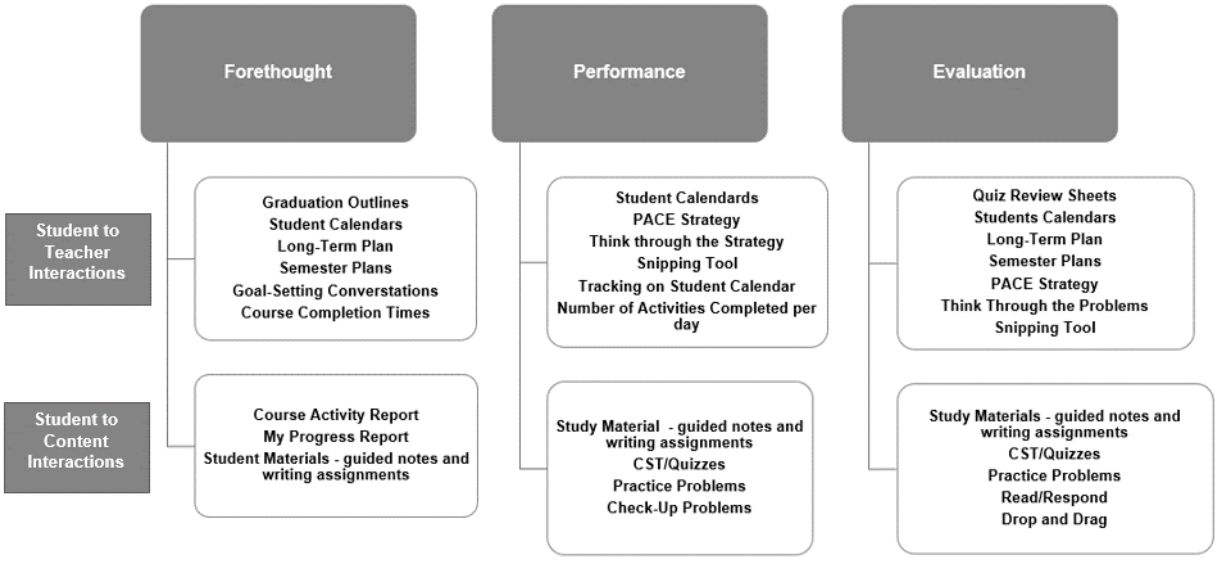


Figure 29. Instructional tools used to support SRL instruction.

A CBLE offers students unique instructional features that present challenges to novice learners. The instructional strategies outlined in Figure 29 demonstrate agreement with the research presented in the literature review (Green et al., 2011). Students who

received and utilized support from a human tutor or computerized scaffolding demonstrated positive learning outcomes. These students learned how to:

- navigate the nonlinear text (student-to-content interactions),
- identify which computerized supports met their learning style (student-to-content interactions),
- develop time management skills (student-to-teacher interactions), and
- ask for help when their strategy was ineffective (student-to-teacher interactions).

Student-to-Content Interactions

Students received a workbook that contains Apex Learning study materials. Examples of these materials were shown earlier in Figure 8. Students completed the learning activity followed by an assessment, formative or summative.

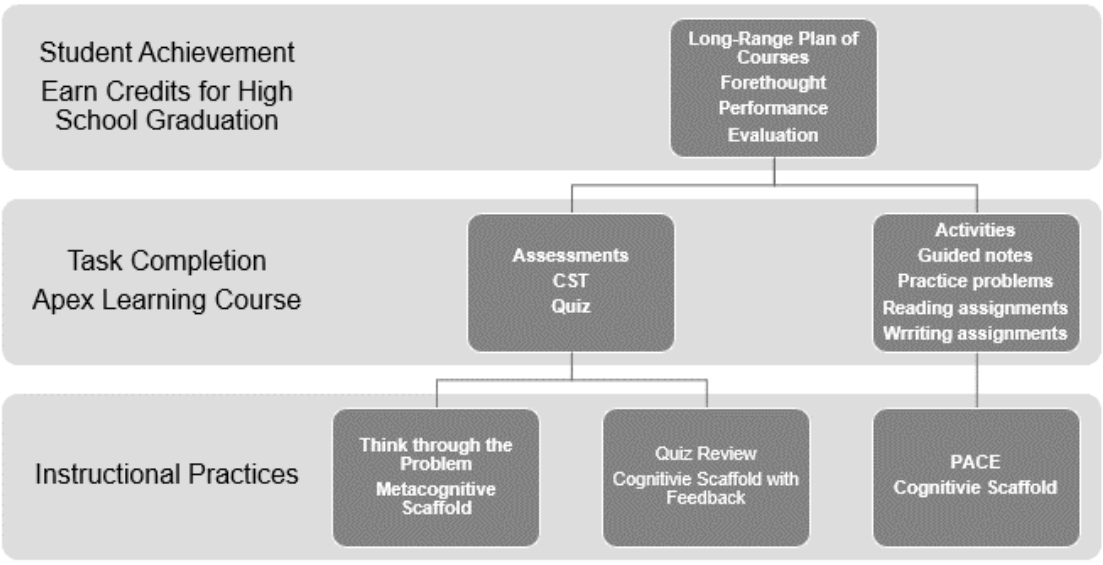


Figure 30. Levels of SRL instruction.

The bottom row in Figure 30 identifies the instructional practices teachers used to support students engaged in task completion, The Apex Learning materials supported cognition and promoted different SRL behaviors. For instance, guided notes encouraged students to engage in forethought by activating prior knowledge. Guided notes also encouraged evaluative behaviors when students used the notes to assess understanding. Reading and writing assignments prompted performance behaviors when the activity required students to summarize their thoughts. Teachers encouraged students to use these materials and noted an improvement in achievement when students utilized the instructional practices found in Figures 29 and 30. These instructional practices demonstrate agreement with the research found in the literature review.

Student-to-Teacher Interactions

Teachers worked with students to create a long-range plan. The graduation outline was individualized to the courses students had completed and the remaining courses needed for graduation. Teachers helped students create a detailed plan by semester and by quarter. Teachers referenced graduation outlines, student calendars, long-range plans, and a number of completed activities in each phase of SRL. The teachers in my study perceived this instructional practice as essential for student success. Strategies such as this one positively influenced achievement because students were encouraged to engage in behaviors across all phases of SRL.

Fryer and Bovee's (2016) findings about the importance of educator support for learners in CBLEs paralleled the results of my study. Struggling students greatly benefited from face-to-face teacher support in a CBLE. The teacher served as a cheerleader to sustain student motivation over the course of a lesson or school year. T3 said: "I also check in several times a week to insure students are on track." The feedback students received from their teachers helped to sustain motivation.

Credit-deficient students were not aware of the number of credits they needed for graduation. Upon discovery, some students became overwhelmed and doubted their ability to earn the credits. At-risk students required academic flexibility, and thus competency-based learning environments had gained popularity (Barnett, 2016). The certified teachers created specific instructional strategies consistent with Barnett's description of successful credit recovery programs. The certified teachers promoted SRL

behaviors of goal-setting, strategic planning, and progress monitoring. These SRL instructional practices appear to be the driving force of the site's success in terms of graduation rate.

As I reviewed the results, I noticed that T1, T2, T3, T4, and T5 provided SRL instruction on two levels. The act of creating long-range plans served as the overarching instructional practice to encourage SRL across all phases. On a lower level, T1, T2, T3, T4, and T5 encouraged students to employ SRL behaviors as they completed individual course tasks within the Apex Learning content. Student-to-teacher interactions provided just-in-time feedback, promoted active learning, and influenced learner efficacy (Duffy & Azevedo, 2015; Moos, 2013; Zheng, 2016). Teachers identified three instructional practices they used to encourage SRL: PACE, thinking through the problem, and quiz review. PACE instruction promotes navigation through Apex Learning content, thereby increasing the amount of time students spend on relevant pages. T1, T2, T3, T4, and T5 prompted students to locate adaptive scaffolds such as key words, titles and subtitles, and the navigation bar. PACE instruction promoted other behaviors as well; students learned to activate background knowledge using key terms appearing in blue. Students were encouraged to use interactive tools such as the drag-and-drop scaffold to check for understanding.

Thinking through the problem encouraged students to select appropriate material, develop thinking steps, and confirm their selection. Teachers prompted students to use these strategies while taking an assessment to enhance performance and required students

to demonstrate mastery on all assessments. A quiz review sheet provided students with feedback when mastery was not achieved. Quiz review, a cognitive scaffold, encouraged evaluative behaviors. T5 said: “I ask students which strategy they used or which strategy they could had used to find success.” T1, T2, T3, T4, and T5 indicated they spend time with each student to discuss and reflect on learning. During these conversations, students not only learned essential task strategies but also inadvertently built relationships with their teachers.

Limitations of the Study

The case study methodology allows researchers the flexibility to design a study to explore authentic environments. A quality case study design provided a well-documented plan to ensure the reliability and validity of the study. There were 209 approved alternative education programs in the state during the 2015–2016 school year. An inspection of the renewal grant data showed few similarities between the programs as the sites varied in the size of student population, the number of certified teachers, and the digital curriculum provider in use. To ensure reliability and validity, I established a systematic selection criterion that can be repeated by another researcher. I used the Apex Learning Curriculum Alignment Handbook to design a pilot study, which helped activate background knowledge of the teachers and helped identify commonly used terms by teachers.

To create the pilot study questionnaire, I used the work of Cleary and Zimmerman and Greene and Azevedo to select known SRL behaviors regularly used in an academic

setting and/or CBLE. After analyzing the pilot study data, I used a microanalytical approach to construct the researcher-designed questionnaires around a task and prompt teachers to consider how instruction and Apex Learning was used to encourage the use of SRL behaviors.

The anonymous nature of my study limited the manner in which data was collected. Participant observations and in-depth interviews are the most commonly used methods of data collection in case study research (Guest et al., 2013). A participant observation would have allowed me to identify the instructional practices used most frequently by teachers. Observations might have allowed me to explore relationships between the student deficiencies and the instructional practice deployed by the teacher. Additionally, I may have been able to provide a rich description of the phase of SRL that best supported task completion. An in-depth interview would have enabled me to probe teachers about their knowledge and beliefs about instruction in the CBLE. Teachers could provide more information regarding the types of deficiency that limit students and how best to support their learning.

Recommendations

The purpose of my study was to describe how the teacher-to-student interactions encourage students to enact SRL behaviors before, during, and after learning. The study was designed to examine programs with documented evidence of student success as measured by increased graduation rates. In addition to the site, I identified two other computer-based alternative education programs that met my selection criteria. To extend

my findings, I could conduct the same study in the two other alternative programs that met the selection criteria. Additional studies in these "like" programs would allow for a comparative analysis to identify

- the most essential SRL behaviors,
- the most widely used content scaffolds within Apex Learning, and
- the most important instructional strategies developed by teachers who facilitate learning in a CBLE.

Other successful alternative programs that use A+, CompassLearning, Edmentum, FuelEd, and GradPoint could also serve as a representative case. I would recommend that other researchers use curricular documents produced by the digital curriculum provider to build the pilot study. The researcher-designed questionnaires could be used with another digital curriculum provided that the researcher substituted the names of the digital curriculum's activity types and built-in/opt-in supports.

In a 2017 policy brief, the American Youth Policy Forum made a series of recommendations for assessing alternative education programs (Deeds & Depaoli, 2017). Researchers encouraged educational leaders to examine the alternative education practices to ensure at-risk students have access to equitable and quality programs (Deeds & Depaoli, 2017). Recommendations included establishing a consistent definition that appropriately describes the purpose of alternative education, as well as identifying must-have structures essential for student achievement.

The American Youth Forum also recommended states use more than one effectiveness measure for alternative education programs (Deeds & Depaoli, 2017). Currently, states lack consistent practices for effectiveness measures. A single metric, such as graduation rate, imposes a great deal of pressure on educators to ensure their credit-deficient students graduate with their 4-year cohorts (Deeds & Depaoli, 2017). In recent years, school leaders have been investigated for unethical practices, such as cheating on standardized test and inflated graduation rates (Gewertz, 2018).

In my literature review, I outlined conditions that are ideal for at-risk students: low teacher-to-student ratios, caring adults, flexible class schedules, and competency-based learning. Many of the alternative education programs use online or blended learning to employ credit recovery options and use competency-based learning for at-risk students (Deeds & Depaoli, 2017; Barnett, 2016; Watson et al., 2011). Students with academic deficiencies not only benefit from the online and competency-based approaches, but also from face-to-face support from teachers (Bannert et al., 2015; Barr & Parrett, 2001; Brophy, 2010).

Teachers provide scaffolding and serve as a source of student motivation, which otherwise deteriorates overtime (Fryer & Bovee, 2016). The role of the teacher in CBLEs and alternative education programs shapes and influences student experience. I recommend that administrators measure the effectiveness of their alternative education program by exploring the social-emotional context of the classrooms. The social-emotional context would provide meaningful feedback to evaluate engagement and

efficacy of students within the school. Moreover, a climate assessment describes student motivation by exploring relationships, such as between the student and teacher, student and peers, and student and curriculum (Shernoff et al., 2016; Zimmerman et al., 2017).

Implications

Few teachers would characterize their at-risk students as self-starters; thus, at-risk students benefit greatly from being taught how to self-regulate their learning (Kostons et al., 2012). These students have a low threshold for frustration, do not have regular school attendance, and experience school failure (Bowers, 2010; Legault et al., 2006; Fryer & Bovee, 2016). In the traditional classroom, both at-risk students and teachers walk away from their interactions feeling inadequate. Teachers are frustrated because they do not have a strategy to engage the student, and students are frustrated because their academic and behaviors needs are not met. Alternative education programs become the last chance for an at-risk student to earn a high school diploma.

I wanted to document how social change can happen on a small scale. Social change occurs when individuals or groups of people share their experiences. The individual or group can identify why the experience empowered them to change or led them to achieve a positive outcome. I designed a case study to highlight the work of teachers who have devoted countless hours to the students no one else wanted to educate. I wanted to draw attention to the way teachers made a conscious effort to provide SRL instruction. I wanted to document that at-risk students can achieve academic success by graduating from high school when they work collaboratively with teachers. The case

study methodology provided me the opportunity to share examples of SRL instruction in an authentic environment. I selected the alternative education program because of the AdvancED Accreditation. Accreditation distinguished the site as a model program. Achieving accreditation indicates the program provides the same quality teaching and learning experiences as the traditional high schools who pay for the students to attend the program.

SRL habits are transferable skills that influence employment and relationships. Wang and Holcome (2010) noted the protective benefits of SRL: students able to regulate their learning have fewer academic and behavioral issues in and out of school. These students are less likely to engage in risky behaviors such as drug use (Wang & Holcome, 2010). Providing SRL instruction helps at-risk learners recognize ways they learn best and builds confidence that they can complete any sort of task in school and life. A CBLE structured around improving the development of SRL strategies can positively influence the high school graduation rates of alternative education programs across state and has the potential of impacting the livelihood of future generations.

Conclusion

The organization of the learning environment sets the tone for success in any school; however, the structure of the environment is even more significant in a computer-based alternative program (Barr & Parrett, 2001). At-risk students benefit from self-paced learning environments that require the students to work independently, use resources, and monitor their progress. Students flourish in classrooms where learning is facilitated by

the teacher (Barr & Parrett, 2001; Brophy, 2010). In a self-paced learning environment, such as the one featured in this study, teachers are responsible for diagnosing and supporting academic deficiencies. Student-to-teacher interactions are brief, frequent, and intentional. Teachers consciously provide instruction to ensure students develop go-to strategies. Notably, self-paced learning requires autonomous behaviors that are sustained when the student feels competent (Brophy, 2010; Schunk, 2008; Zimmerman et al., 2017). Student-to-teacher interactions undoubtedly promote autonomy and competence. Instruction and supportive feedback serve as driving forces that influence student efficacy and keep the SRL cycle moving even when the teacher is no longer present.

I began my educational career 20 years ago. For 11 of those years, I was the principal of the alternative education program that served as the case for this study. While principal, the program served more than 3,500 at-risk students. The background of the study began with the discussion of criteria for students who are eligible to enroll in alternative education programs. Terms such as suspended, expelled, disruptive, and unsuccessful were used to describe these students. Based on my experience, there is more to the story and there are better words that could be used to described at-risk students.

While the students did not serve as the major focus of my study, I want to describe these students. As mentioned in Chapter 1, at-risk students have experienced years of failure once they reach high school. On paper, these students have low grades and standardized test scores; some students have academic deficiencies in reading and mathematics. These students have experienced trauma that has left them untrusting,

resentful, and bitter. The learning environment oftentimes reinforces their insecurities, and these students find it easier to avoid the situation.

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Appendix A: Data Use Agreement

Name of Signer: Kristen Milton Watt

During the course of my activity in collecting data for this research: **Reengaging At-Risk High School Students with Self-Regulated Learning**. I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this Confidentiality Agreement I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I am officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signature: _____ **Date:** _____

Appendix B: Participant Email One

To: Highly-Qualified Teachers

From: Kristen Milton Watt
Doctoral Student
Walden University

Dear Highly-Qualified Teachers,

I am conducting a case study research project as partial fulfillment of my dissertation from Walden University. The purpose of my study is to explore how alternative education teachers promote self-regulated learning in a computer-based learning environment to re-engage at-risk high school students toward graduation.

I am inviting all highly-qualified teachers to participate in the study. Participation is strictly voluntary and includes a questionnaire, submission of artifacts and professional development documents, and a follow-up survey. The questionnaire is anonymous and contains 22 questions that will take approximately 20 minutes. I will ask you to submit at least six artifacts/documents and the focus group will take between 30 – 40 minutes. The purpose of the questionnaire, artifacts/documents, and focus group will examine how highly-qualified teachers encourage students to set goals and plan before beginning a learning task, to monitor progress and select use a strategy during a learning task, and evaluate their work after a learning task.

I would like you to keep a few things in mind as you consider whether to volunteer for the study:

- This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Merit Learning Center, Goshen Community Schools, or Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

- Any information you provide will be kept anonymous and confidential. I have structured the study in a manner in which your personal identity is unnecessary, thus maintaining your anonymity.

- Participating in this study would not pose risk to your safety or well-being and will not go beyond reflecting about your normal daily experiences.

- Participating in the study will benefit the larger alternative education community by identifying ways to reengage high school students towards graduation.

- Upon the completion of the data collection period, the alternative school faculty and staff will be provided with lunch from a local restaurant as a thank you for serving as a research site for the study.

Please feel free to email me with any additional questions or concerns. My email address is kristen.miltonwatt@waldenu.edu.

Appendix C: Participant Email Two

To: Highly-Qualified Teachers

From: Kristen Milton Watt
Doctoral Student
Walden University

Dear Highly-Qualified Teachers,

As you know, I am conducting a case study research project as partial fulfillment of my dissertation from Walden University. The purpose of my study is to explore how alternative education teachers promote self-regulated learning in a computer-based learning environment to re-engage at-risk high school students toward graduation.

I am inviting you to participate in the final survey for my study. If you did neither participated in the first questionnaire in SurveyMonkey nor submitted documents for review, please disregard this email.

For those of you who did participate in the first questionnaire in SurveyMonkey and submitted documents for review, you may access the follow up survey at the link below. The final follow-up survey should take you approximately 25 minutes to complete.

Survey Link:

I would like you to keep a few things in mind as you consider whether to volunteer for the study:

- This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Merit Learning Center, Goshen Community Schools, or Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

- Any information you provide will be kept anonymous and confidential. I have structured the study in a manner in which your personal identity is unnecessary, thus maintaining your anonymity.

- Participating in this study would not pose risk to your safety or well-being and will not go beyond reflecting about your normal daily experiences.

- Participating in the study will benefit the larger alternative education community by identifying ways to reengage high school students towards graduation.

- Upon the completion of the data collection period, the alternative school faculty and staff will be provided with lunch from a local restaurant as a thank you for serving as a research site for the study.

Appendix D: Interacting with Apex Learning – Part II

Interacting with Apex Learning Content - Part II

Phases of Self-Regulated Learning

Research Question: What self-regulated learning habits do alternative school teachers perceive are most essential for at-risk students to develop when working in a computer-based learning environment?

Self-regulated learning (SRL) is an important theory that can be described as study skills needed for academic success. SRL is a cyclical process that describes academic and behavioral actions that students engage in before, during, and after learning. There is a great deal of research on self-regulated learning that shows a relationship between SRL and academic ability. In other words, students who earn good grades or pass standardized tests, often have developed SRL strategies. These students are able to set goals for learning, possess strategies that assist in learning, and monitor progress toward their goals.

1. Place a check next to the phrase that is the most essential to student success (i.e. earning a credit or passing an assessment).

- ◯ Developing a plan to accomplish a specific task
- ◯ Activating background knowledge to accomplish a specific task

2. Explain why your selection was made.

3. Place a check next to the phrase that is the most essential to student success (i.e. earning a credit or passing an assessment).

- ◯ Setting goals to complete an activity within a course
- ◯ Evaluating course content to complete an activity within a course

4. Explain why your selection was made.

Appendix E: Interacting with Apex Learning – Part I

Interacting with Apex Learning Content - Part I

Background Knowledge

A computer-based learning environment (CBLE) can be described as an educational setting in which technology is used to deliver instruction and is used to help learners master goals or objectives of the lesson. The alternative education program in which you work can be classified as a computer-based learning environment, because your program utilizes Apex Learning's digital curriculum to deliver the majority of coursework. Computer-based learning environments (CBLEs) offer a variety of learning modalities within the course activity types. The modalities allow the learner to select the modality best suited for mastering the lesson's goals or objectives.

You have received a copy of Apex Learning's Curriculum Alignment Handbook. Apex Learning's curriculum consists of Units, Lessons, and Activities. Please review the material on pages 4 and 5 of the handbook. You will find activity types with a description that students encounter within a lesson. At the bottom of page four and top of page five, you will see a list of course materials that students may access as well. On page five, Apex Learning provides a list of student resources that are found within the Student Appendix.

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Interacting with Apex Learning Content - Part I

Activity Types that Support Self-Regulated Learning

Research Question: How do teachers use the student-to-content interactions to promote forethought, performance, and evaluation in a CBLE?

Students enact certain behaviors before learning, during learning, and after learning; these phases of learning are associated with the theory of self-regulated learning. Students move in and out of each phase while engaged in learning or during task completion. Apex Learning organizes the curriculum by units, lessons, and activities. Students interact with various types of activities within lessons. These activities types are designed to support students with different academic ability levels and learning styles. Think about how your students engage with Apex Learning activities within each of the courses.

Appendix F: Providing Self-Regulated Learning Instruction

Providing Self-Regulated Learning Instruction

Phases of Self-Regulated Learning

Research Question: How do teachers encourage an at-risk student to use self-regulated learning strategies in a computer-based learning environment?

Self-regulated learning (SRL) is an important theory that can be described as study skills needed for academic success. SRL is a cyclical process that describes academic and behavioral actions that students engage in before, during, and after learning. There is a great deal of research on self-regulated learning that shows a relationship between SRL and academic ability. In other words, students who earn good grades or pass standardized test, oftentimes, have developed SRL strategies. These students are able to set goals for learning, possess strategies that assist in learning, and monitor progress toward their goals.

Forethought is the first phase in self-regulated learning. These are strategies that students use before they begin a lesson or beliefs that students have before they begin a lesson.

1. Describe at least one way, but no more than three ways that you provide planning instruction.

2. Describe at least one, but no more than three ways Apex Learning activity types or opt-in supports within the digital curriculum that you encourage students to use when planning.

Go to the Next Page

Providing Self-Regulated Learning Instruction

Performance Instruction

Performance is the second phase in self-regulated learning. These are strategies that students use to monitor actions and behaviors during learning or task completion.

3. Describe at least one way, but no more than three ways that you provide instruction on monitoring performance.

Appendix G: Pilot Data Analysis Memo One

10/15/2016

Survey Description:

I have collected all of the data from three off-campus highly-qualified teachers. 3 out of 3 participants completed the questions found within the survey monkey survey. 2 out of 3 participants successfully uploaded the Student-to-Content Interaction sheet found in survey question 7.

> **Key Phrases** - Behaviors, Actions, and Activities most frequently used by highly-qualified teachers completing Pre-Data Collection Survey - to be used in case study.
>
> **Activity Type** - see page 4 in Apex Learning's Curriculum Alignment Handbook.
>
> **Task** - an activity in which the learner demonstrates knowledge or understanding.

The purpose of the pre-data collection survey is to identify key phrases and activity types recognized by highly-qualified teachers as supporting self-regulated learning in a computer-based learning environment.

Importance or Significance - Rules for inclusion or exclusion:

Three off-campus highly-qualifed teachers participated in the survey. After reviewing the data, I will included or excluded certain key phrases and/or activity types based on the number of response(s) the survey choice receives.

I will **include** the phrase or activity type if the number of **responses equals 2 or 3**.

I will **exclude** the phrase or activity if the number of responses is **less than** 2.

Q1 - List of Activity Types to be Included:
Practice
Computer-Scored Test (CST)
Study
Quiz

List of Activity Types to be Excluded:
Unit/Lesson Overview
Quiz
Teacher-Scored Test (TST) Checkup
Journal

Q2 - **Activity Types Most Frequently Encounter**
Computer-Scored Test (CST)
Study
Quiz

Appendix H: Pilot Data Analysis Memo Two

10/15/2016

Q7- Think about your own students and the instruction that you provide them. Now, read the list of self-regulated learning behaviors.

> Select no (N) if you do not teach your students the identified self-regulated learning behavior. Select yes (Y) if you teach your students the identified self- regulated learning behavior.

Rules for Inclustion or Exclusion

> I will **include** the phrase or activity type if the number of **responses equals 2 or 3**.
>
> I will **exclude** the phrase or activity if the number of responses is **less than** 2.

Forethought Instruction - Included

Planning

Goal Setting

Activating background knowledge

Evaluating content to complete a goal

Performance Instruction

Navigating Apex Learning content

Monitoring strategy use

Searching the text

Selecting useful information

Taking Notes

Reviewing notes

Managing time

Using content resources in the appendix

Appendix I: Pilot Data Analysis Memo Three

10/15/2016

I did not find this question to be as insightful as question 7. The one thing that does standout to me is that Mr. Gilreath provided examples within the "other" category which indicate that these examples fall outside of Apex Learning. I coded these phrases in the student-to-teacher interaction and within the specific phase of self-regulated learning.

Appendix J: Steps of Data Analysis

Name: Steps of Data Analysis

12/20/2016

1. Reviewed paper copies of the SurveyMonkey Results for each researcher-designed survey. I made annotations to the data sheets; I circled and underlined specific words. I also wrote questions that came to mind during my initial review of the data.

2. Exported pdf files of the surveys and survey results into NVivo 11. Imported surveys and survey results into a unique folder identified by the name of the researcher-designed survey.

3. Coded data for the phases of self-regulated learning (forethought, performance, and evaluation).

4. Color-coded each phase of self-regulated learning.

Forethought - Red

Performance - Blue

Evaluation - Yellow

5. Coded data for the type of interaction (student-to-content and student-to-teacher).

6. Open-ended questions are throwing me off. I easily coded the open-ended questions related to observable behaviors. These were easy because of the question design...I asked for behaviors that were associated with a specific phase of self-regulated learning. I easily coded the open-ended questions related to Apex Learning supports and teacher instruction. Here again, the survey linked a particular behavior or task to a specific phase of self-regulated learning. The participants usually identified the content type that they used to provide instruction that aligned to a phase of self-regulated learning.

Appendix K: Research Question Summary Chart

Research Question Summary -

Research Question	Instrument	Forethought	Performance	Evaluation
RQ 1 – What self-regulated learning habits do alternative school teachers perceive are most essential for at-risk students to develop when working in a CBLE?	Interacting with Apex Learning Content – Part 2 1, 3, 5, 7, 9, 11, and 13 Responses Linked to RQ 3	Developing a plan to accomplish a specific task Setting a goal to complete an activity in a class	Using the study to increase understanding Navigating Apex Learning Content Monitoring strategy use Developing thinking steps	Identifying content that is understood or not understood Finding the most useful material in the lesson
RQ 2 - In what ways do teachers encourage an at-risk student to use self-regulated learning strategies in a CBLE?	Providing Self-Regulated Learning Instruction Secondary Sources of Data Responses Linked to RQ 4	Forethought	Performance	Evaluation
		Student-to-Teacher Interactions	Student-to-Teacher Interactions	Student-to-Teacher Interactions
		Graduation Outlines Student Calendars Long Term Plan Semester Plans Goals- Setting Conversations Use of Comparative Data – Course Completion Times	Student Calendars PACE Think through the Strategy Snipping Tool Tracking on Student Calendar Number of Activities Completed per day	Quiz Review Sheets Student Calendar Long Term/ Semester Plans Discussion – Teacher Reports PACE Think through the Strategy Snipping Tool
		Forethought	Performance	Evaluation
		Student-to-Content Interactions	Student-to-Content Interactions	Student-to-Content Interactions
		Pacing Guide - Calculated Averages Course Activity Report/My Progress Report	Study Material – guided notes and writing assignments CST/Quizzes Practice Problems Check-Up Problems	Study Material – guided notes and writing assignments CST/Quizzes Practice Problems

Appendix L: Permission to Use Copyrighted Material

Kristen Milton Watt

PERMISSION TO USE COPYRIGHTED WORKS IN A DISSERTATION

January 18, 2016

Cynthia Rogan
Vice President of Marketing
Apex Learning Inc.
1215 South Fourth Avenue, Suite 1500
Seattle, Washington 98161

Dear Mrs. Rogan,

I am a graduate student at Walden University. I am in the process of writing a dissertation; *Reengaging At-Risk Students with Self-Regulated Learning*. My dissertation will likely be published within the Walden University Dissertation Databases, therefore, I am seeking permission to include the following image in my publication. Below the image, you will find a description that can be found within Chapter One of my dissertation.

Biology Core Semester 1

Introductory Page of 1.2 – Connections in Biology