

CRESST REPORT 777

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PREPARING STUDENTS FOR THE
21ST CENTURY: EXPLORING THE
EFFECT OF AFTERSCHOOL
PARTICIPATION ON STUDENTS'
COLLABORATION SKILLS, ORAL
COMMUNICATION SKILLS, AND
SELF-EFFICACY

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The National Center for Research on Evaluation, Standards, and Student Testing

Graduate School of Education & Information Sciences
UCLA | University of California, Los Angeles

**Preparing Students for the 21st Century:
Exploring the Effect of Afterschool Participation on Students'
Collaboration Skills, Oral Communication Skills, and Self-efficacy**

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Abstract

This study addressed key questions about LA's BEST afterschool students' self-efficacy, collaboration, and communication skills. We compared student perceptions of their own 21st century skills to external outcome measures including the California Standardized Test (CST), attendance, and teacher ratings. We found a substantial relationship between student self-efficacy compared to student oral communication and collaboration skills. However, we did not find that higher attendance in LA's BEST led to higher self-efficacy, though further investigation is needed. We found that LA's BEST students were able to evaluate their abilities so that they are similar to the outcome measures of CST and teacher ratings. Moreover, the high-attendance group demonstrated significantly better alignment with the teacher ratings than the lower attendance groups in self-efficacy, oral communication skills, and collaboration skills.

CHAPTER I:

INTRODUCTION

Learning and Innovation skills are increasingly being recognized as the skills that separate students who are prepared for increasingly complex life and work environments in the 21st century, and those who are not. A focus on creativity, critical thinking, communication and collaboration is essential to prepare students for the future.

—P21 Framework

On September 10 through 12, 2007, a poll of 800 registered voters across the country was conducted by Public Opinion Strategies and Peter D. Hart Research Associates on behalf of the Partnership for 21st Century Skills¹ The results revealed that an overwhelming 80% of voters believe that the skills students need to learn to be prepared for jobs in the 21st century are different from what they needed 20 years ago. While voters continue to believe that traditional,

¹ The Partnership for 21st Century Skills is a coalition of leading education, business, and technology organizations. In 2002, they synthesized the perspectives of business, education, and government leaders to create a common language and strategic direction for efforts to infuse 21st century skills into K-12 education in a report titled, "Learning for the 21st century" (See <http://www.21stcenturyskills.org>).

basic skills are important, 66% of the voters believe that students need more than just basic reading, writing, math, and science. Furthermore, virtually all of those polled (99%) stated that the teaching and learning of 21st century skills (i.e., critical thinking and problems solving skills, computer and technology skills, and communication and self-direction skills) are very or somewhat important to the future economic success of the United States (Partnership for 21st Century Skills, 2007). The 21st century skills partnership states, “Every aspect of our education system—Pre-K through 12, postsecondary and adult education, after-school and youth development, workforce development and training, and teacher preparation programs—must be aligned to prepare citizens with the 21st century skills they need to compete” (2009).

There are evidences that high-quality afterschool programs can promote a range of competencies and skills for the 21st century (Partnership for 21st Century Skills, 2008). Through active participation in a wide range of activities, students can use their skills as they work with afterschool staff to solve problems, make decisions, and take on leadership responsibilities. For example, the 2005 CRESST study, “Examining the Effects of Academic Skills and Academic Enablers Taught at LA’s BEST on the Achievement of Student Participants,” found that students and staff both perceived that interpersonal skills, motivation, and self-efficacy were promoted at LA’s BEST [Los Angeles’ Better Educated Students for Tomorrow afterschool program] (Huang et al., 2005). Interviews with LA’s BEST staff revealed that they used a variety of strategies to enhance these skills in students. For example, most staff (78.6%) indicated that they provided teamwork activities to improve students’ socialization skills, while 42.9% collaborated with students, and 14.3% taught conflict resolution skills. Nearly 93% of staff indicated that they give verbal encouragement to help students believe in themselves, and most staff (71.4%) reported that they try to make activities fun in order to promote motivation. The following year, the “Exploring the intellectual, social, and organizational capitals at LA’s BEST” study revealed that it was a social norm in the LA’s BEST setting for staff members to have high expectations for students to think critically and build their characters and for staff to offer caring support (Huang et al., 2007). Many staff members passionately described that they were sending encouraging messages to students about getting good grades, studying hard, behaving properly, going to college, being a positive community member, and becoming successful.

Current literature supports the notion that there is a relationship between participation in afterschool programs and the development of 21st century skills; therefore, it is important to explore these claims and investigate whether participation in afterschool activities makes a difference in the development of these skills. This study intends to reduce the gap in literature by focusing on three of the 21st century skills that are commonly referenced and often associated

with afterschool activities: self-efficacy, collaboration skills, and oral communication skills. Accordingly, the main research questions for this study are as follows:

1. Are LA's BEST students' feelings of self-efficacy associated with their collaboration and communication skills?
2. Is there an association between participation in LA's BEST and students' feelings of self-efficacy, collaboration skills, and communication skills?
3. How accurate are LA's BEST students evaluating their own 21st century skills as compared to external outcome measures of California Standardized Test (CST) results and teacher ratings? Are there differences in how students are evaluating themselves across the different attendance levels?

CHAPTER II: LITERATURE REVIEW

Within the 21st century framework, student competencies have moved beyond basic content knowledge and skills to include the attitudes, adaptability, and innovations that students will need to be successful in school, in the work place, and in relationships. This 21st century framework shares many commonalities with the social cognitive theory on self-efficacy, which emphasizes the application of self-regulatory behaviors so that students can take purposeful, proactive, and reflective approaches in their own functioning (Zimmerman & Schunk, 2001).

According to social cognitive theory, self-efficacy is the belief in one's own ability to master a challenge or perform effectively (Bandura, 1982; Zimmerman & Kitsantas, 2005). It influences the types of behaviors that one employs when deciding whether to take on a task, what choices to make, and how much effort and perseverance to apply towards that task (Bandura & Wood, 1989). It requires students to use self-regulatory procedures that serve as mediators between personal views (e.g., beliefs about success), behavior (e.g., engaging in a task, strategies used), contextual characteristics (e.g., feedback from a teacher, expectations from parents), and actual learning outcomes (Pintrich, 2004). Self-efficacious students undertake difficult and challenging tasks more often than inefficacious students (Zimmerman & Kitsantas, 2005), expand more effort, persist longer (Multon, Brown, & Lent, 1991), and have fewer adverse emotional reactions when they encounter difficulties (Pajares & Kranzler, 1995; Bandura, 1997). Self-efficacy also provides students with a sense of agency, which motivates their learning by propelling the cyclical phases of self-regulatory processes such as self-monitoring, self-evaluation, and self-reaction (Zimmerman, 2002).

In social learning theory, self-monitoring refers to the cognitive tracking of personal functioning, such as keeping record of how much time one spends writing an essay. Self-evaluation refers to comparisons of how one performs against some standard, such as one's prior performance or personal goals. Self-reaction refers to feelings of self-satisfaction regarding one's performance. Increases in self-satisfaction enhance motivation, whereas decreases in self-satisfaction undermine future efforts to learn, thus influencing future goal setting (Schunk, 2001).

Importance of Self-monitoring and Self-evaluation

In today's society, with rapidly changing information and communication technology, the way that knowledge is generated and transmitted is incessantly evolving. Students and citizens need to develop self-directive processes to become proactive in their own course of lifelong

learning. Researchers and teachers agree that it is important to start by empowering students with the self-awareness and the strategic knowledge that they would need to self-improve continuously (Boekaerts & Corno, 2005; Schunk, 2001).

However, according to Dunning, Johnson, Ehrlinger, and Kruger (2003), high achievers tend to underestimate and report lower than their actual capabilities, whereas low achievers tend to overestimate and report higher than their actual capabilities. At the same time, teachers in the classrooms were also aware of these shortfalls in students' abilities to self-evaluate, and they emphasized the importance of training students to be able to gauge their performance accurately (Stone & May, 2002). Similarly, Dunning et al. also stressed that since individuals must be aware of their weaknesses before they can improve them, it is essential that individuals be able to evaluate their own abilities and skills accurately. This study will examine whether experiences in LA's BEST provide opportunities for students to gain self-awareness and strategic knowledge for learning.

How LA's BEST Promotes Self-efficacy

According to Bandura (1982), self-efficacy is acquired in a social learning environment in four ways: through performance attainment, by vicariously observing the experiences of others, by verbal persuasion by influential persons and allies, and by experiencing physiological states that are associated with self-appraisal across various situations. With the support of its caring staff members, LA's BEST can provide these conditions in the following ways:

- Performance attainment can be promoted by offering activities that foster students' confidence and perceived competence (e.g., performances in arts, science projects, and physical activities).
- Vicarious observation can be achieved by offering students positive experiences and interactions with accomplished individuals at the program who share commonalities with the students (e.g., afterschool personnel who are attending a four-year college).
- Verbal persuasion can take place when staff offer encouragement and appraisal of the students and of teacher/parent expectations.
- Since physiological states such as anxiety, stress, fatigue, and mood also contribute to efficacy beliefs, LA's BEST can also offer opportunities for students to practice regulating these physiological states and to improve their cognitive self-appraisal by allocating time and space for challenging activities (e.g., public speaking or competitive sports).

In this study, self-efficacy is defined as the capacity for personal management as well as the ability to process the skills and personal attributes that enable students to become successful adults. These skills and attributes include positive self-esteem, the ability to understand the

importance of learning and knowledge, the ability and skills to learn and gain knowledge, a belief in one's own efforts, the ability to adapt, and the ability to analyze and problem solve.

Self-efficacy is also related to communication and collaboration (Jerald, 2009). During the process of learning, self-regulated students maintain an active and ongoing awareness of task demands, of the effectiveness of their learning strategies, and of the progress towards the goals they have set (Pintrich, 2004). Self-efficacious students are also effective at seeking help, group management, and other aspects of collaboration and communication (Newman, 2008). Together these two competencies enable students to express and understand messages with accuracy and to work well together as part of a team.

Oral Communication Skills

Communication generally implies the exchange of thoughts and ideas with the intention of conveying information. Since communication involves almost every aspect of our interactions with other people, it provides the basis of how relationships are constructed and maintained. Good communication skills can reduce misunderstandings, errors, frustrations, and conflicts on a regular basis. Through communication, our ideas and interests are transmitted to other people; thus, the way we communicate serves as the foundation on which people form their opinions about us (Butler & Stevens, 1997). Therefore, effective communication leads to healthy personal and work relationships (Boyd, Lilling, & Lyon, 2007). According to the critical skills survey conducted by the American Management Association² (AMA) in 2010, recruiters from major companies cited communication skills as a key factor in choosing managers. Thus, communication is a fundamental life skill that ought to be developed from an early age (Cameron & Quinn, 1999).

Although there are many forms of communication, in this exploratory study we focus on oral communication. Competency in oral communication is defined as the ability to make clear and convincing oral presentations to individuals or groups, listen effectively and clarify information as needed, and facilitate an open exchange of ideas.

LA's BEST fosters these skills by having students read stories to each other, participate in discussions on topics that interest them, practice debating and clarifying their points of view in discussion/planning groups. Students may also communicate their ideas when they collaborate with each other, present in front of class or in shows, or join the debate teams, etc.

² The American Management Association is a world leader in talent development, advancing the skills of individuals to drive business success. Organizations worldwide, including the majority of the Fortune 500, turn to AMA as their trusted partner in professional development.

These specific examples point out that in many instances, development of communication and collaboration skills go hand-in-hand, especially when the students work in teams. The following section reviews the current literature on collaboration skills.

Collaboration Skills

Many researchers identify collaboration and oral communication skills as instrumental factors in supporting student learning because they provide students with opportunities to express ideas, share thoughts, and explain and help each other (Kafai, 2002). Moreover, in today's global economy, we have shifted from a document-focused work style to a people-focused work style. Together with communication skills, working in teams is cited as another key factor in choosing managers (AMA survey, 2010). As such, the abilities to communicate effectively and work collaboratively with diverse groups of people are essential skills in the 21st century economy.

Collaboration can be broadly defined as building and effectively utilizing relationships and informal networks to achieve a common goal (Roschelle & Teasley, 1995). It enables people to build on each other's ideas and prior knowledge, resulting in innovations. Researchers tend to agree that collaboration can foster learning and productivity (Jarboe, 1996; Kumpulainen & Mutanen, 2000). As reported by Webb and Mastergeorge (2003), collaborative learning is considered an essential part of primary school instruction in countries such as the United States, Australia, and Israel. Johnson and Johnson (2000) state further that collaborative learning is widely used in educational settings, starting as early as pre-school, in afterschool programs, and extending to graduate schools.

However, simply assigning students to small groups and asking them to work together does not necessarily promote collaboration (Knight & Bohlmeier, 1990). A deliberate attempt has to be made to teach students how to collaborate effectively. Skills that students need to develop in order to collaborate efficiently would include management of group dynamics, problem-solving processes, and interpersonal communication skills (Webb & Farivar, 1994). Three types of communication skills are found to be especially important in collaborations: Students in successful collaborative groups were found to provide explanations, ask questions, and engage in argumentative discussions more often than students from less effective groups (Chan, 2001; Okada & Simon, 1997; Van Boxtel, 2000). As suggested in the previous examples, LA's BEST provides the ideal setting to develop these oral communication skills. In addition, LA's BEST also provides students with activities to develop collaboration skills such as conflict resolution. Furthermore, the program offers many opportunities to engage in hands-on, experiential activities that require teamwork and collaboration, such as team projects for a science fair. Consequently, the following collaborative skills are fostered:

- the ability to work effectively and respectfully with diverse teams,
- a flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal, and
- the assumption of shared responsibility for collaborative work as well as the value of individual contributions made by each team member.

In this study, collaboration skills are defined as having the ability to know and understand group dynamics, having the capacity of functioning productively in a team or group, understanding and maintaining group ethics, being able to absorb and handle pressure, and managing disputes among team members.

The LA's BEST Program

Los Angeles' Better Educated Students for Tomorrow (LA's BEST) was first implemented in the fall of 1988. The program is under the auspices of the mayor of Los Angeles, the superintendent of the Los Angeles Unified School District (LAUSD), a board of directors, and an advisory board consisting of leaders from business, labor, government, education, and the community.

LA's BEST seeks to provide a safe haven for at-risk students in neighborhoods where gang violence, drugs, and other types of anti-social behaviors are common. The program is housed at selected LAUSD elementary schools and is designed for students in kindergarten through fifth/sixth grade. The LA's BEST sites are chosen based on certain criteria, such as low academic performance and their location in low-income, high-crime neighborhoods.

LA's BEST is a free program open to all students in the selected sites on a first come, first served basis. Students who sign up for the program are expected to attend five days a week in order to reap the full benefits of the program offerings. Currently, the LA's BEST program is implemented in 180 schools throughout LAUSD. LA's BEST serves a student population of approximately 30,000 with about 80% Hispanic and about 12% Black elementary students. English Learners comprise at least half of the student population from most sites. Of this population, the majority's primary language is Spanish, while the other percentage of the English Learner population is composed of those whose first language is of Asian/Pacific origin.

Program Offerings

Since its inception in 1988, LA's BEST has adapted and updated its goals in response to educational policies, research, and theory. Over the years, the program has moved past its initial emphasis on providing a safe environment and educational enrichment to an emphasis on the development of the whole-child. In developmental theory, a whole-child curriculum is one that cultivates the development of students' intellectual, social, and emotional well-being so that

children can achieve their full potential (Hodgkinson, 2006; Schaps, 2006). There are three and a half activity periods, or beats, at LA's BEST: cognitive beat, homework beat, recreational beat, and snack (the half beat). These activity periods focus on the whole-child by emphasizing students' intellectual, social-emotional, and physical development.

The cognitive and homework beats focus on intellectual development. They are designed to develop the following traits:

- **Responsibility and positive work habits.** LA's BEST staff emphasize the importance of completing assignments, teach learning strategies and study skills, and provide a learning climate that reinforces positive attitudes towards school.
- **Love of learning.** By encouraging active participation, explorations, and engaging research-based activities, the LA's BEST program is crafted to instill a love of learning in its students.
- **Self-efficacy.** Self-efficacy is achieved at LA's BEST through guided experiences, challenging activities, and relationship building between staff and students.
- **Future aspirations.** LA's BEST is designed to help students develop aspirations for their futures; more specifically, the staff's high expectations, the activities that build self-reliance, the value placed on education at the program, and the opportunities for collaboration and critical thinking are all meant to foster student aspiration.

The recreational beat focuses on physical and social-emotional development. It is designed to develop the following benefits and characteristics:

- **Sense of safety & security.** This is accomplished by providing students with a safe and nurturing environment.
- **Healthy lifestyle.** This is accomplished through curriculum and activities that promote drug and gang prevention, healthy eating habits, and plenty of exercise.
- **Social competence.** LA's BEST aims to develop social competence by demonstrating respect for self and others and by providing students with opportunities to form friendships and develop trust and respect with peers and adults.
- **Sense of community.** LA's BEST fosters a sense of community by providing students with opportunities to participate in community-sponsored events, volunteer in community assignments, and go on field trips to local business and organizations.
- **Respect for diversity.** A respect for diversity is taught at LA's BEST using role modeling and a curriculum that enhances awareness.

To summarize, the mission of LA's BEST is to provide engaging settings so that each student learns in an intellectually challenging environment that is physically and emotionally safe for both students and adults. Furthermore, in the LA's BEST environment, each student can be actively engaged in learning activities that are connected to their school and broader

community, and most importantly, each student has access to extra-curricular activities, academic enhancements, and qualified, caring adults.

The Current Study

In this study, it is hypothesized that attending LA's BEST in higher intensity will give students opportunities to participate in activities that will enhance their self-efficacy, thus increasing their skills in regulating their own learning process. When students have the capacity to self-manage and the ability to navigate through the courses of their learning, they will become more successful in oral communication skills and collaboration skills. Figure 1 displays the hypothesized path model.

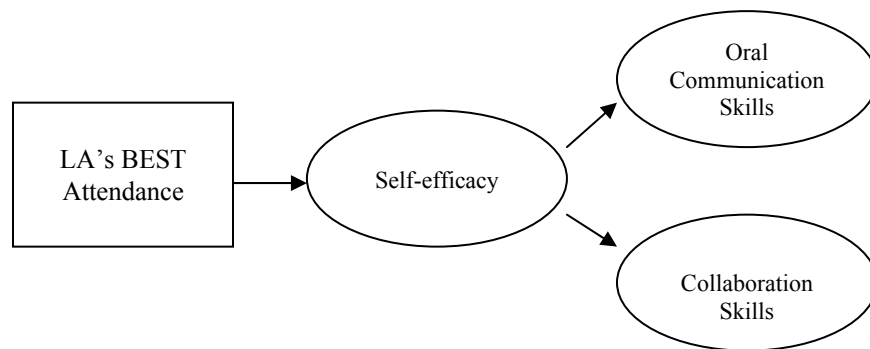


Figure 1. Hypothesized path model.

In light of the important role of self-evaluation in the self-regulatory model, this study will take a second step to examine how well the students evaluate their own abilities when compared to external outcome measures. Since previous literature has associated self-efficacy with achievement outcomes (Taboada, Tonks, Wigfield, & Guthrie, 2009), California Standards Test (CST) scores on Math and English language arts are used as the outcome measure of academic achievement. In addition, teachers' ratings of students' citizenship are also used as a secondary outcome measure. It is hypothesized that each component of the students' 21st century skills (i.e., self-efficacy, oral communication skills, and collaboration skills) will be associated with the external outcomes measures: academic performance and teacher ratings of students' citizenship and study skills. Multiple group modeling is used to test these hypotheses. An example of the hypothesized model is shown in Figure 2.

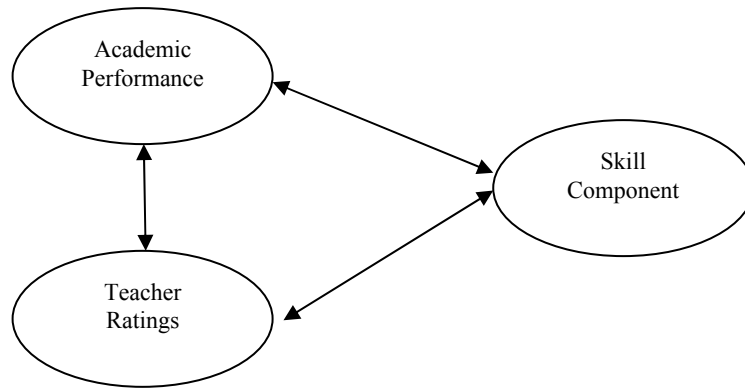


Figure 2. Hypothesized multiple-group model for self-evaluation.

CHAPTER III: STUDY DESIGN AND METHODOLOGY

This chapter provides descriptions of the design, procedures, and methodology for the study.

Study Design

This study employs a quasi-experimental design that consists of student surveys and analysis of existing data. A survey was developed and administered to students from a sample of 35 schools that host the LA's BEST program. Each student in the sample completed the survey one time during the 2008–09 or 2009–10 school year. Students' demographics, academic data, and school and afterschool attendance records were provided to the CRESST research team in May 2010. Since random assignment was not possible for this study, a propensity-based weighting method was used to minimize existing differences in student background characteristics. Structural Equation Modeling (SEM) was used to analyze the relationships between the latent factors.

Site Selection and Recruitment of Participants

Due to the nature and complexity of the student survey, the selection of sites was limited to those schools that served the upper elementary grade levels (4th and 5th grade) during the 2008–09 school year. This resulted in a population of 174 LA's BEST sites. The study team then used a random number generator in order to select the sites and their alternates for recruitment.

After the sites were identified, the research team obtained permission from the University of California, Los Angeles, Office for Protection of Research Subjects to implement the study procedures and instruments (approved on March 4, 2010). Upon approval, the research staff recruited 35 sites, obtaining written permission from the school principals to conduct the student survey administration. Finally, afterschool staff and school administrators helped the research staff distribute parent permission forms and student assent forms.

The key participants in this study were LA's BEST students and their classmates who were not enrolled in the LA's BEST program at the time. During the first year of data collection, students in both 4th and 5th grade were eligible to participate. In order to maintain the same cohort, data collection was further limited to 5th grade students during the second year of data collection. Overall, 911 students from the 35 sites completed the student survey. Of these students, 40 were excluded because of a lack of a student identifier (in order to link their survey and existing data), 8 were excluded because they failed to respond to five or more survey

questions,³ and 150 were excluded because they did not have demographic and performance data for the 2008–09 school year. In addition, 16 students were excluded because it was determined that they were not in 4th or 5th grade at the time of their survey. This resulted in a final analytic sample of 697 students. The descriptive characteristics of the students in the final analytic sample are shown in Table 1.

Table 1
Descriptive Characteristics of the Student Participants

Characteristics	Percent of total (<i>n</i> = 697)
Language classification	
English only	25.0
Initially fluent	16.5
RFEP	27.1
ELL	31.4
Grade level (08-09 School Year)	
4th grade	73.6
5th grade	26.4
Gender	
Male	43.8
Female	56.2
Parent Education	
Some college	17.5
HS grad	21.1
LT HS	33.3
Declined-unknown	28.1
Survey Administration Date	
Year 1	54.1
Year 2	45.9

Note. ELL = English language learner; HS = High School; LT HS = Less than high school; RFEP = Redesignated fluent English proficient.

³ Expectation-Maximization algorithm (a method for finding maximum likelihood estimates of parameters in statistical models, where the model depends on unobserved latent variables) was employed to impute missing values for the 82 surveys with five or fewer missing items.

Measures

CRESST employed the following measures to examine the relationship between participation in LA's BEST and the development of 21st century skills. A description of each measure is provided below.

Student Survey

The student survey was developed to examine students' 21st century skills (represented by self-efficacy, oral communication skills, and collaboration skills in this study). The survey included scales on self-efficacy, oral communication skills, and collaboration skills. Items for each of these scales were selected or adapted from previously established scales including Form A of the Communication Attitude Test (Bruten, 1985), the Student Attitudes toward Group Environment questionnaire (Kouros & Abrami, 2006), and Bandura's Children's Self-Efficacy Scale (2006). The questions selected from the first two scales focused respectively on the issues of interpersonal and personal affect about communication, as well as peer interaction, process, and product. Those questions selected from Bandura focused on the issues of perseverance, self-regulation, academic self-efficacy, and other self-efficacy issues (i.e., expectations, relationships). In addition, the survey included three background questions concerning students' current and past participation in afterschool programs.

Studies on the effects of "framing" (on questionnaires) often suggest a significant "response acquiescence bias" towards the positively framed items (Gamliel & Peer, 2006; Swamy, 2007). To minimize this bias, this study follows Guyatt et al.'s suggestion that questionnaires assessing attitudes toward educational programs include a mix of positively and negatively stated items (1999). All items, except the background questions, were asked using a four-item Likert scale consisting of "True," "Mostly True," "Mostly False," and "False."

Following the pilot study at two LA's BEST sites during Spring 2010, five questions were deleted and others were refined in order to improve readability and reliability. Cronbach's alpha for the 24 items concerning oral communication ($\alpha = 0.807$) and the 25 items concerning self-efficacy ($\alpha = 0.812$) showed that both scales have good internal consistency. The collaboration scale was administered using 22 items. Following data collection, the item, "I get upset when kids in my group say bad things about my work" exhibited a poor negative item to total scale correlation ($r = -0.199$) and was deleted from final analysis. The research team believed that the wording of the item might have confused the students. With this item removed, the remaining 21 items concerning collaboration showed good internal consistency ($\alpha = 0.831$).

Existing Student Records

LA's BEST provided the research team with afterschool attendance data. In addition, LAUSD provided matched data on student background characteristics, achievement, and report card data.

Achievement. LAUSD provided student-level data including the test scores from the CSTs for math and English language. These test scores were used in this study as outcome measures for academic performance (AP) to gauge students' self-evaluation. Academic performance was employed as an outcome measure because self-efficacy, oral communication skills, collaboration skills, and self-regulation skills are all consistently linked to school performance.

According to Zimmerman, Bandura, and Martinez-Pons (1992), students' self-efficacy and self-regulation of academic performance is linked to their awareness of covert and overt outcomes of their behavioral functioning. Self-regulated students are significantly more likely than non-self-regulated students to know how well they did on a test before it was graded by their teachers. Furthermore, self-efficacy, goal setting, self-monitoring, use of learning strategies, and self-reflection all have consistently been shown to be good predictors of academic outcomes such as math and writing performance and course grades (Cleary, 2006; Graham, Harris, & Troia, 2000; Pajares & Urdan, 2006; Schunk, Pintrich, & Meece, 2008; Zimmerman & Martinez-Pons, 1990). They have also been shown to be predictors of adaptive behaviors such as persistence, resiliency, and effort (Bandura, 1997; Schunk, 1983).

Similarly, Kastner, Raggio, and May (2000) found that language-based skills are associated with future academic performance in school-aged students, while Hughes & Large (1993) found that oral communication skills are positively correlated with college pharmacology students' grades on theory papers and long essays. Meanwhile, students with effective collaboration skills are found to exercise more autonomy with their learning and obtain higher learning outcomes than peers less efficient in collaboration skills (Gillies & Ashman, 1998).

At the same time, research has also shown that teachers can easily identify students who are self-regulated by their attributes (Zimmerman, & Martinez-Pons, 1988). For example, self-starters who display perseverance on learning tasks; students who are confident, strategic, and resourceful in overcoming problems; and students who are self-reactive to task outcomes are frequently identified by their teachers as self-regulated. Thus, teacher ratings on students' study skills and citizenships are also used as outcome measures to gauge students' self-evaluation ability on their survey responses.

Students' work and study skill ratings. The student report card data included teacher ratings on five categories of their students' work and study skills. These categories were rated

using a five-point Likert scale. The categories that the teachers rated included the following: “makes good use of time,” “completes work on time,” “organizes materials,” “presents neat and careful work,” and “works independently.” Each of these skills requires self-regulation.

Zimmerman and Martinez-Pons (1988) stated that self-regulated students are distinguished by their sensitivity to (and resourcefulness when dealing with) the effects of the social and physical environment on their learning. They are more likely to organize or restructure their place of study, seek social assistance, keep records, and monitor their progress. Researchers have also indicated that time planning and management are significantly related to academic achievement (Pintrich, Smith, Garcia, & McKeachie, 1993; Zimmerman & Martinez-Pons, 1986). Conversely, when students' self-regulatory skills are lacking, they will often be at high risk for exhibiting poor academic outcomes and maladaptive behaviors such as poor organization and time-management skills, inconsistent work completion and accuracy, and avoidance of school-related activities (Pintrich et al., 1993). These self-regulatory skills are all reflected in the teacher ratings of the study skills. Thus, these ratings were used as outcome measures to gauge the accuracy of students' self-evaluation.

Students' citizenship ratings. The student report card data also included teacher ratings of nine student citizenship items. These items were rated using a four-point Likert scale, with “1” being lowest and “4” being highest. The numerical ratings indicated whether a student's citizenship was (1) Poor, (2) Inconsistent, (3) Consistent, or (4) Strong.

In order to create a closer match between the ratings and the factor of collaboration, the research team further separated the citizenship ratings into two subcomponents: students' self-discipline and students' peer interaction. The subcomponent of self-discipline included the following items: “follows direction,” “accepts and respects authority,” “shows dependability,” “takes responsibility,” and “exercises self-control.” Like the work and study skill ratings, these self-discipline ratings were used because they reflect a student's ability to self-regulate.

A recent study reported that self-discipline in students is a predictor of academic abilities (Ponitz, McClelland, Matthews, & Morrison, 2009). The researchers used the Head-Toes-Knees-Shoulders Task (HTKS) to evaluate 343 kindergartens' ability to self-regulate. The HTKS task measures the ability to listen, remember instructions, and follow motor commands. The researchers concluded that students with higher levels of these self-regulation skills in the beginning of the school year achieved higher scores in vocabulary and math at the end of the school year. Self-regulated learners are also better at using self-control to avoid distraction from their learning tasks (Corno, 1993; Zimmerman et al., 1992). Furthermore, as reported in a study on discourse and self-regulation, it was found that through open discussions, students get to

practice skills such as following directions, accepting and respecting authority, showing dependability, and taking responsibility (Mason, 1998).

The items in the second subcomponent of the citizenship ratings, peer interaction, included teachers' observations on students' demonstration of social competency with peers. The possible observations were, "demonstrates appropriate social interaction with peers," "demonstrates fair play," "resolves conflicts appropriately," and "cooperates well in group situations."

Research shows that social strengths can contribute to self-efficacy. Perceived social self-efficacy measures students' beliefs in their own capabilities to form and maintain social relationships and manage different types of interpersonal conflicts (Bandura, 1994). A high sense of social efficacy promotes satisfying and supportive social relationships. It fosters social behaviors such as sharing, helpfulness, kindness, and cooperativeness, all of which build peer acceptance (Ladd, Price, & Hart, 1988). Students who are considerate of their peers and are accepted by them will find school to be a favorable environment (Bandura, 1994). Students who are comfortable seeking help from adults and peers are found to achieve higher mastery of their academic coursework than those who are not confident about their social capabilities (Newman, 1991). Thus, the teacher ratings on citizenship can be used as outcome measures for social efficacy and collaboration.

Meanwhile, evidences also suggest that oral communication and collaboration stimulate learning at school. A study in science discourse found that group discussions stimulated the construction of advanced knowledge by sharing ideas collaboratively. Students reasoned and argued through steps of opposition and construction (Mason, 1998). Through these procedures, students exercise study skills by organizing their thoughts, presenting neat and careful work, working independently as well as cooperatively, and taking responsibility. In open discussions, students also get to practice citizenship skills such as following direction, accepting and respecting authority, showing dependability, taking responsibility, and exercising self-control. In maintaining constructive discussions, students develop collaboration skills such as interacting appropriately with peers, playing fair, resolving conflicts appropriately, and cooperating in group settings.

These indicators of self-efficacy, oral communication skills, and collaboration skills are all consistent with the teacher ratings of their students' study skills, citizenship, and peer interaction. Thus, they were used as outcome measures to gauge the accuracy of students' self-evaluation in these factors.

Data Collection Procedures

Thirty-five LA's BEST sites were randomly selected by the research team, and permission for the schools to participate in the study was granted by each principal. Students were each surveyed once during the period of the study.

During the first year of data collection (2008–09), the sample was comprised of both 4th and 5th grade students. During this year, surveys were administered during school hours. The teachers were requested to survey all the students in their classrooms, including LA's BEST and non-LA's BEST participants. Because of increasing pressure concerning budget cuts and state test scores, school administrators and teachers expressed concern about taking students away from their normal class activities. As a result, it was more difficult to obtain parent permission and student assent than anticipated. In response, the research team and the LA's BEST operations office extended data collection for a second year (2009–10). During this second cycle of data collection, data collection was limited to the afterschool hours. In addition, eligibility to participate was limited to the 5th grade students (4th graders during the first year) in order to maintain the original student population. It should be noted that the vast majority of schools that host LA's BEST do not serve students in 6th grade. Issues involving data collection were addressed in the methodology by controlling for the date of survey administration during analysis.

Data Analysis

The following describes the strategies and procedures used to establish the attendance categories and to analyze the quantitative data sources.

Categorizing Attendance

Examination of afterschool attendance patterns indicates that students participate in LA's BEST with varying regularity. Therefore, it was necessary to set criterion to measure the intensity of attendance. Previous studies have indicated that students need to participate at least 100 days in order to reap program benefits (Frankel & Daley, 2007; Huang, Leon, La Torre, & Mostafavi, 2008). Initially, the research team intended to use 100 days as a reference in setting the attendance criteria for this study.

Defining attendance intensity. Although the average attendance of LA's BEST students is 114 days, the students who obtained informed consent and participated in the study showed an average attendance of 153 days. Due to this unexpected pattern, for the purpose of analysis, it was necessary to create categories for students with well over 100 days to ensure an adequate sample size under each category. Additionally, since the school teachers were not successful in

recruiting non-participants into the study, only a handful of non-LA’s BEST students had obtained parent consent to participate in the study. All these challenges resulted in a study sample very different than the one that the study team had intended to recruit. Alternately, the team took note of the number of days students attended during the 2008–09 school year and categorized attendance into the following three levels of intensity: 0–100 days (Level 1),⁴ 101–170 days (Level 2), and 171–239 days (Level 3). Table 2 shows the distribution of the three levels across the samples.

Table 2
LA’s BEST Attendance Intensity

	Average LA’s BEST attendance intensity (2008-09)			Total
	Level 1 (0–100 days)	Level 2 (101–170 days)	Level 3 (171–239 days)	
Usable sample linked to attendance	249 (29%)	276 (32%)	338 (39%)	863 (100%)
Analytical sample	164 (24%)	226 (32%)	307 (44%)	697 (100%)

Quantitative Data Analysis

There were two primary steps involved in the research team’s analytic approach. The first step was to control for existing background differences between participants across the different levels of attendance intensity. After controlling for differences between participants, the research questions were then analyzed using a series of SEM models.

Controlling for differences. In social science, randomized control experiments are often difficult to achieve due to study design and/or ethical issues; subsequently, quasi-experimental designs using propensity scoring methods have become the best approximate to a randomized control design and are gaining widespread use. In this study, since the students were not randomly assigned to the three attendance levels, it was necessary to control for existing differences in students’ background characteristics and other factors so that potential associations could be explored. The propensity scoring method was used to complete this task. To compute a propensity score, two iterations of logistic regression were used to estimate the probability that a student was in one of the three attendance intensity groups.

⁴ Students who were not enrolled in LA’s BEST during the 2008–09 school year were included in Level 1 because the sample size was too small to study independently.

Logistic regression. Logistic regression was employed to model the relationship between student background characteristics and the likelihood of a student attending the LA's BEST program at the Level 1 attendance intensity as compared to the Level 2 attendance intensity. This initial logistic regression produced estimates for the first two levels of LA's BEST attendance intensity.

Next, a similar process was used to estimate the likelihood of a student attending the LA's BEST program at the Level 3 attendance intensity as compared to the Level 2 attendance intensity. A formula was then used to place the estimates for the students in the highest level of attendance category (Level 3) on the same scale as the estimates obtained from the initial logistic regression. This resulted in a propensity scalar that would create balance across each attendance intensity level so that none of the background indicators would be overrepresented in any of the three attendance levels.

Weighting process. The propensity score was applied in a weighting approach to create balance among student background characteristics and other factors across intensity groups. Cases were inversely weighted relative to their propensity outcome and normalized so that the final weighted sample was the same size as the original unweighted sample. Once balance was reached among student background characteristics across the intensity levels, valid comparisons could be made.

The list of the variables included in the balancing procedures along with a description of the before and after weighting procedure is shown in Appendix A. As indicated in the tables provided in Appendix A, there were no longer any variables that were significantly associated with LA's BEST attendance intensity during the 2008–09 school year after applying the weighting process. A detailed example of how the propensity scalar was created is also presented in Appendix A.

Structural equation models. Structural equation modeling was conducted using the EQS software to examine the relationships between LA's BEST program attendance during the 2008–09 school year and student readiness to utilize 21st century skills. First, a path model was used to test the hypothesis that higher LA's BEST attendance intensity would lead to higher self-efficacy and subsequently higher oral communication skills and collaboration skills (research questions 1 and 2). Multiple group structural models were then applied to examine how accurate the students' self-evaluations were as reflected by the strength of the association between the measures of 21st century skills and those of student performance and teaching ratings across the three LA's BEST attendance levels (research question 3).

**CHAPTER IV:
STUDENT DEMOGRAPHIC ANALYSIS AND SEM MODELING RESULTS**

This chapter presents the demographic analysis and modeling results for the study.

Student Demographics

Descriptive results of the students’ survey responses in relation to their background characteristics are shown in Table 3. On a four-point Likert scale, the mean response score was slightly over 3 for each of the 21st century skill measures. A score of 3 would indicate a “Mostly True” response to a positively framed question or a “Mostly False” response to a negatively framed question.

With regard to language classification, English Language Learners tended to report somewhat lower self-efficacy and oral communication skills than English Only and Initially Fluent students. There were no significant differences in collaboration skills across the language classification categories.

Fourth grade students reported slightly higher self-efficacy and collaboration skills than did fifth grade students. There were no significant differences in 21st century skills reported by boys as compared to girls. It is interesting to note that students whose parents attended some college reported higher oral communication skills than those whose parents declined to provide education data.

Table 3
Student Demographic and Survey Responses

	Mean Response Score		
	Self-efficacy	Oral communication	Collaboration
Language classification	**	**	
English only	3.18	3.26	3.05
Initially fluent	3.23	3.32	3.10
RFEP	3.17	3.17	3.14
ELL	3.04	2.97	3.08
Grade Level	**		*
4 th	3.18	3.14	3.11
5 th	3.09	3.18	3.03

	Mean Response Score		
	Self-efficacy	Oral communication	Collaboration
Gender			
Male	3.13	3.15	3.06
Female	3.17	3.15	3.12
Parent education			
Some college	3.20	3.27	3.20
HS grad	3.16	3.17	3.16
LT HS	3.14	3.14	3.15
Declined-unknown	3.12	3.03	3.12
Combined mean	3.15	3.15	3.09

Note. ELL = English language learner; HS = High school; LT HS = Less than high school; RFEP = Redesignated fluent English proficient.
 ** represents significance across the specific demographic categories at $p < 0.01$, while * represents significance across the specific demographic categories at $p < 0.05$.

Structural Modeling Results

First, results from the path model are presented.

Path Model

The path model demonstrated adequate fit as indicated by comparative fit index (CFI) = 0.961 and root square error of approximation (RMSEA) = 0.056. As shown in Figure 3, the three latent factors consist of student self-efficacy, oral communication skills, and collaboration skills. The shaded box of LA's BEST attendance is a simple ordered indicator of the three LA's BEST attendance levels. Significant associations are indicated by solid arrows with the corresponding standardized beta coefficients displayed inside the box. Standardized beta coefficients can be interpreted like correlation coefficients (r). A standard rule of thumb converts an r of 0.10 to a small effect size, while an r of 0.24 can be considered moderate, and an r of 0.37 or greater can be considered a large effect.

The first research question presented was, *Are students' feelings of self-efficacy associated with their collaboration and communication skills?*

As expected and in support of literature on self-efficacy and 21st century skills, significant positive findings are shown in the solid paths drawn from self-efficacy to collaboration skills ($r = 0.61$) and communication skills ($r = 0.75$). As for the second research question (*Is there an association between participation in LA's BEST and students' feelings of self-efficacy, collaboration skills, and communication skills?*), the findings indicate that intensity of LA's

BEST attendance is not significantly associated with student self-efficacy, oral communication skills, or collaboration skills.

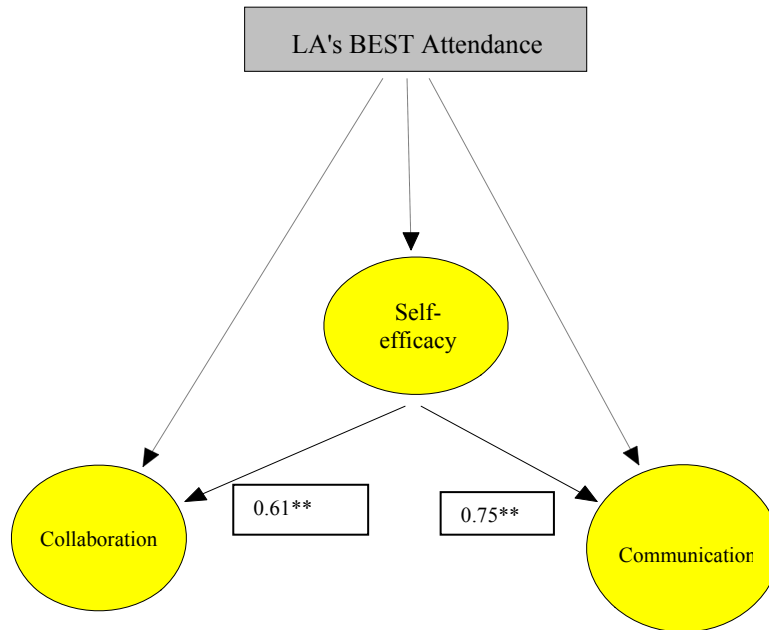


Figure 3. The path model.

There could be multiple reasons why significant associations are not found between LA's BEST attendance intensity and the 21st century skill measures. First, due to the challenges for data collection during this time of high economic and emotional turmoil, the study ended up with an overall reduced sample size largely represented by high-attending students. This resulted in the underrepresentation of LA's BEST participants that are attending less than 100 days. In order to generate the sample size necessary for analysis, the study team had to combine students with some attendance ($n = 92$) and those with no attendance ($n = 72$) together. Although extreme care was applied in controlling students' existing background differences, there could be unmeasured differences between students with some attendance compared to those with no attendance. This may make inferences regarding comparisons to this LA's BEST attendance category more difficult.

In addition, causal inferences are generally more constrained with cross-sectional analyses. For this study, since data were collected at one time point, even though students' existing background differences were controlled, variations across the three attendance levels (in the baseline of 21st century skill competencies) still may not be completely captured by the available background controlling variables.

Furthermore, prior research has indicated that students with low skill levels sometimes overestimate their abilities while students with higher skill level tend to underestimate their

abilities, thus creating unbalanced bias for the accuracy of students' self-evaluations (Kruger & Dunning, 1999). If this phenomenon is present in the way students responded, the results might have consequences to the findings of the study.

To examine this phenomenon further and to proceed with the third research question (*How accurate are LA's BEST students evaluating their own 21st century skills as compared to external outcome measures of CST results and teacher ratings? Are there differences in how students are evaluating themselves across the different attendance levels?*), four structural models were constructed to test these relationships. All the model results are based on the weighted sample that controls for existing student differences.

Multiple Group Structural Self-Evaluation Models

Multiple group structural models are applied to examine the strength of association between measures of 21st century skills and those of student performance and teacher ratings across the three LA's BEST attendance levels. In other words, we might ask, "How accurate are students evaluating their own ability as compared to external outcome measures of CST results and teacher ratings? Are there differences in how students are evaluating themselves across the different attendance levels?"

In order to conduct the multiple group structural models, all constraints have to be removed and model fit established. This was achieved through the following steps. First, a model was specified to constrain all model correlations to be equal across the three LA's BEST attendance groups. A Lagrange multiplier (LM) test was then used to see if model fit would be significantly improved by releasing a constrained correlation (allowing it to vary across groups). When the test indicated a probability of less than 0.05, the constrained correlation was released. A released constraint indicated that the correlation (association) was different depending upon LA's BEST attendance intensity level. This process was repeated until all remaining constraints were no longer significant and would not improve model fit by being released. The hypothesized model was tested for adequate fit as indicated by the comparative fit index (CFI) and the root mean-square error of approximation. In the case that adequate fit was not obtained, the LM test for adding parameters was used to re-specify the model.

Figures 4, 5, 6, and 7 represent the findings. In these figures, each attendance level represents a group. Each rectangle contains the three correlations for Attendance Levels 1, 2, and 3, respectively. Shaded rectangles indicate that significant differences in the correlations were observed across the three attendance groups.

Self-efficacy. The first model examined the relationship between self-efficacy and outcome measures of academic performance and teacher ratings. Due to the sample size of the study, it

was necessary to combine the 25 self-efficacy items into eight item parcels to reduce the number of parameters in the model. Item parcels were defined by four self-efficacy subscales and, as suggested by the LM test, the framing of the item (positive/negative). This approach was applied so that potential differences in factor loadings across attendance levels would not be hidden or glossed over by the parcel combination. See Appendix B for a detailed representation of the measures in each multiple group model.

In each of the following models, academic performance (AP) is represented by a factor that combines performance in CST scores from the 2008–09 school year in math and English language arts. Another factor combines teacher ratings (TRs) of students’ work, study habits, and citizenship skills. In Figure 4, a single factor of self-efficacy is modeled.

The fit indices from this model indicated a less-than-adequate model fit ($CFI > 0.894$; $RMSEA = 0.091$). An examination of the LM test results suggested that parcels within the self-efficacy factor had different associations with AP and TR depending on how the item was framed. In order to improve model fit, LM tests suggested that two self-efficacy factors be included based on item framing to allow these associations to be represented.

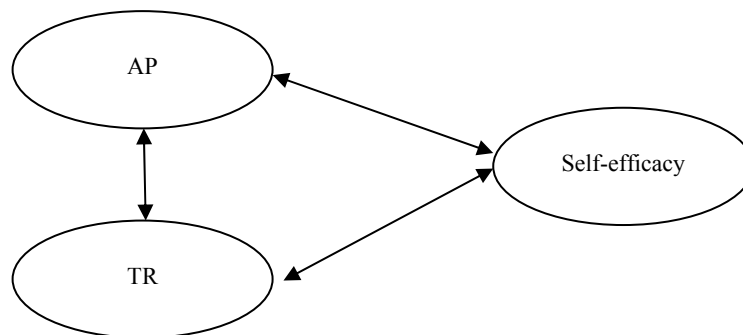


Figure 4. Self-Efficacy model 1.

For this reason, the survey items from the self-efficacy scale were separated into two factors: positively (PSE) or negatively (NSE) framed. Examples of positively framed items are, “It is easy for me to finish my homework on time,” and “I am good at organizing my schoolwork.” After separation, there were 17 positively framed items with a Cronbach alpha of these items at 0.802. Examples of negatively framed items are, “It is hard for me to finish my assignments on time,” and “I am not good at taking notes during class.” There were eight negatively framed items; the Cronbach alpha for these items is 0.695.

After re-specifying the model, fit indices indicated a substantially improved model fit ($CFI = 0.978$; $RMSEA = 0.039$). As shown in Figure 5, the positively framed self-efficacy factor had a modest association with both AP ($r = 0.20$) and TR ($r = 0.12$), and these associations were

not different across the LA's BEST attendance levels. However, there were differences in the associations between the outcome measures and NSE across the LA's BEST attendance levels. Specifically, students who attended LA's BEST over 170 days had a considerably stronger association between the negatively framed self-efficacy factor and both AP ($r = 0.55$) and TR ($r = 0.33$).

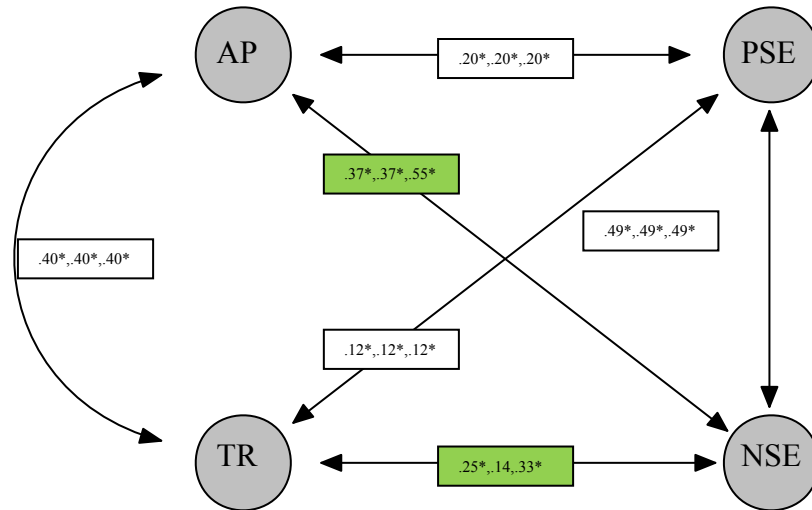


Figure 5. Self-efficacy model 2.

Communication and student performance. The communication model examined the relationships between oral communication skills, student performance in math and English language arts (AP), and teacher ratings (TR). The model is shown in Figure 6. Item parcels were defined by two oral communication subscales (interpersonal and personal affect) and the framing of the item. Initial fit indices indicated an adequate model fit (CFI = 0.963; RMSEA = 0.071).

The model reveals that oral communication skills were more strongly associated with AP than with TR. It was found that students who attended LA's BEST over 170 days demonstrated stronger associations between oral communication questions and both AP and TR. There was no significant association between oral communication and TR for students who attended LA's BEST less than 170 days, while students who attended LA's BEST over 170 days had a small but significant association ($r = 0.17$). Students who attended LA's BEST over 170 days had a strong association between oral communication and AP ($r = 0.50$). This indicates that students in the higher attendance group are better at evaluating their ability in oral communication skills, as affirmed by the alignment with the CST scores and teacher ratings.

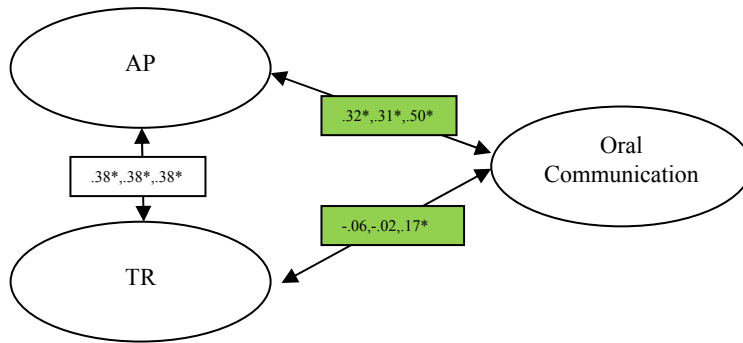


Figure 6. Oral communication skills model.

Collaboration and Citizenship. Figure 7 displays the collaboration model that the research team used to examine the relationships between a single factor of collaboration skills and AP and TR. For this model, item parcels were combined based on three subscales (peer-support, product of collaboration, and process of collaboration).⁵ The fit indices indicated an adequate model fit (CFI = 0.973; RMSEA = 0.047). The findings indicate that there was a small but significant association between collaboration and AP regardless of LA’s BEST attendance. There were no differences in the association between collaboration and teacher ratings across the three attendance categories. Similar to the oral communication factor, there was no significant association between collaboration and TR for students who attended LA’s BEST less than 170 days. However, for those who attended LA’s BEST over 170 days, a moderate association ($r = 0.27$) was present. A detailed representation of the measures in this model is presented in Appendix B.

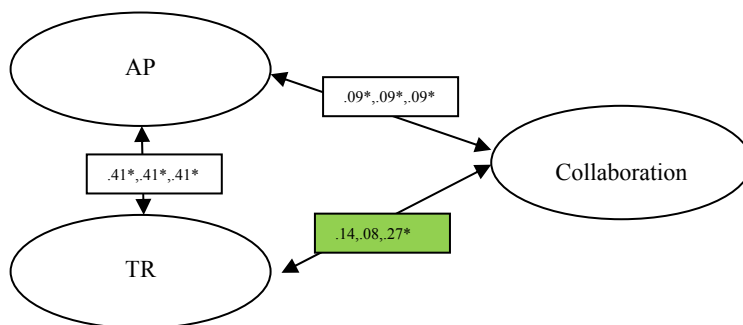


Figure 7. Student collaboration model 6.

⁵ Item parcels were not created based on item framing as there were only three negatively framed items.

CHAPTER V: DISCUSSION AND CONCLUSION

The path model supported current and existing literature and Research Question 2, which suggests that self-efficacy is significantly related to both collaboration skills and oral communication skills. LA's BEST students that rated themselves high on self-efficacy also had high oral communication skills and collaboration skills. However, the model failed to support the first research question and the hypothesis that higher attendance of LA's BEST students will lead to higher self-efficacy, oral communication skills, and collaboration skills. It is found that attendance intensity at LA's BEST has no relationship with self-efficacy. As expressed previously, there can be a number of plausible explanations for this occurrence, such as:

- This is a student sample that represents more of the higher attendance group than the normal distribution of LA's BEST participants; this unexpected occurrence may have skewed the study sample and, thus, the findings.
- Since this is a cross-sectional study looking at student responses from a single time point, perhaps having a pre- and post-survey will be better at detecting student differences in their development of self-efficacy.
- According to the Kruger & Dunning effect, it may also be possible that students higher in self-efficacy are rating themselves lower than their actual performance, whereas students lower in self-efficacy are inflating their abilities.

Future studies can examine these issues further.

Meanwhile, interesting findings emerged from this exploratory study. To address the emphasis on the importance of self-evaluation noted by the 21st century framework, social cognitive studies, and the work of Kruger & Dunning, we turn to Research Question 3, which examines how LA's BEST students are evaluating themselves across self-efficacy, oral communication skills, and collaboration skills. Specifically, the question inquires whether intensity of attendance contributes to their self-evaluation skills. This study found that higher attending LA's BEST students consistently evaluate themselves more in accordance with the external measures than the lower attendees do.

As an example, for self-efficacy, the positively framed factor had a modest association with both academic performance and teacher ratings; but these associations were not different across the LA's BEST attendance levels, indicating that all three attendance groups evaluate themselves quite similarly with the external measures. However, the negatively framed factors appeared to have stronger associations with academic performance and teacher ratings than did the positively framed factor; moreover, these associations (between negatively framed factors and self-

efficacy) were also significantly different across the LA's BEST attendance levels. Students who attended LA's BEST over 170 days had the strongest association between the negatively framed self-efficacy factor and the external outcome measures of academic performance and teacher ratings. These findings suggest that, in this study, negatively framed self-efficacy items appeared to have better predictive power than the positively framed items. Furthermore, the findings also suggest that students in the higher attendance group can respond to the negatively phrased items better than the lower attendance group and are better at evaluating their self-efficacy in alignment with their academic performance in CSTs and with their teachers' ratings of themselves.

From a different perspective, the negatively framed items in this study hinted at the students' abilities to acknowledge that they are not "excellent" at some tasks. For example, one of the negatively framed items is, "I am not good at learning to read." In order to come to terms with that self-assessment, some cognitive processes need to be taken. Studies such as the theory of planned behavior (Ajzen, 1991) and several theories of individual differences in motivation (Carver & Scheier, 2000) have indicated that factors such as message framing and dispositional motivations can be integrated into larger theories of behavior change. They propose that behavior is regulated by two distinct systems: an approach system that regulates appetitive behavior toward potential rewards and an avoidance system that regulates behavior away from potential threats or punishments. Similarly, studies on self-efficacy, motivation, and achievement also focused on the need for achievement and avoidance of failure (Elliot & Church, 1997; Elliot & McGregor, 2001). Need for achievement represents an approach-valenced motivational disposition to experience pride upon the demonstration of competence, while fear of failure is defined as a disposition to avoid failure in achievement settings since one felt shame upon failure (Elliot & Thrash, 2004). How these different attributions will play into students' responses can be further examined in future studies.

As for oral communication skills, similar to self-efficacy, students who attended LA's BEST over 170 days again demonstrated stronger alignment with the way they are evaluating themselves in oral communication skills and the outcome measures of their academic performance and teacher ratings. For academic performance, even though all students' ratings are significantly related to their CST performance, the higher attending group shows the strongest relationship. As for teacher ratings, the higher attending students are the only group that shows a significant relationship with their self-evaluation and their teachers' ratings.

For collaboration skills, teacher ratings were more in alignment with student evaluation; however, contrary to oral communications, all students' self-evaluations were only marginally, but significantly, related to academic performance. It should also be noted that the higher

attending group was the only group that was significantly aligned with their teachers' ratings in citizenship.

These findings indicate that students' self-evaluations on self-efficacy, oral communication skills, and collaboration skills are generally more aligned with their academic performance than with teacher ratings on citizenship. It should also be noted that the higher attending group's self-evaluations are more strongly related to academic performance than the other attendance groups are. Meanwhile, teacher ratings on citizenship appeared to have more discriminatory power, as the high-attending students were the only group whose self-evaluations were significantly related with teacher ratings (other than positively framed items on self-efficacy).

Regarding the third research question, LA's BEST students appeared to be mostly accurate when evaluating themselves in self-efficacy, oral communication skills, and collaboration skills. The higher attending students have also consistently indicated that their self-evaluations are in closer alignment with both their academic performance and the teacher ratings.

Conclusion & Recommendations

In summary, this study supported the literature that associates self-efficacy with oral communication skills and collaboration skills. However, the study findings did not support the hypothesis that higher attendance in LA's BEST will lead to higher self-efficacy, though further investigation into the self-evaluative abilities of the LA's BEST students would provide new insights. In addressing the third research question, it is found that, overall, LA's BEST students are able to evaluate their abilities so that they are similar to the outcome measures of CST performances and teacher ratings. Moreover, the high-attendance group demonstrated significantly better alignment with the teacher ratings than the lower attendance groups in self-efficacy, oral communication skills, and collaboration skills.

Examinations on the literature and teachers' practices underscored the importance of students employing self-regulation techniques. The social cognitive theory recommends that teachers help students develop self-regulation strategies and set realistic expectations for their academic accomplishments. It appears that LA's BEST is promoting self-evaluation skills, particularly among the higher attendees. In the future, LA's BEST can continue to improve all of its students' self-evaluation skills by applying focused strategies and by making more intentional efforts. Research suggests that the simplest tools to encourage students' self-appraisal are evaluative questions that force students to think about their own work. Some examples of these questions include the following:

- How much time and effort did you put into this?
- What do you think your strengths and weaknesses were in this assignment?

- How can you improve your assignment?
- What are the most valuable things you learned from this assignment?

In order to gauge student progress in the future, LA's BEST could also institute the administration of a yearly self-efficacy survey to their participants as part of their enrollment procedures. This type of data collection would allow further study into the relationship between self-efficacy, self-regulation, and student outcomes from a longitudinal perspective.

In summary and conclusion, it is encouraging to observe that LA's BEST students are evaluating themselves in alignment with the outcome measures. According to contemporary literature, it is important to develop self-regulatory skills and become lifelong learners in the 21st century. Thus, it is important that students learn self-evaluation strategies and self-monitoring skills, not only in oral communication and collaboration, but in all learning experiences. When students evaluate themselves, they are assessing what they know, what they do not know, and what they would like to know. Only in doing this can they begin to recognize their own strengths and weaknesses and keep on learning.

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Appendix A:

Propensity Weighting Process

Propensity Scalar Formula

Two logistic regression equations were used to estimate a propensity scalar of case. For cases from LA's BEST Attendance Intensity Levels 1 and 2, the probability (P1) of being in Intensity Level 2 was used. To create a propensity scalar for cases from the third LA's BEST attendance intensity level, the following formula was used:

$$PS = ((1/1-P1)/P1) * P2$$

Where:

PS = Propensity scalar

P1 = The probability of being in Intensity Level 2 based on Logistic Regression Equation 1 (Intensity Levels 1 and 2).

P2 = The probability of being in Intensity Level 2 based on Logistic Regression Equation 2 (Intensity Levels 3 and 2).

The application of this formula had the effect of placing the estimates for the Level 3 cases (obtained from Equation 2) on the same scale as the Level 1 and 2 estimates (obtained from Equation 1). The result was a unique propensity scalar that could balance background variables across all three intensity levels.

Control variables with descriptive results before/after weighting

As reported earlier, it was necessary in this study to control for existing differences in student background characteristics and other factors. Individual background variables used in the controlling process included parental education, gender, grade level, language classification, ethnicity, track code, and prior attendance in a non-LA's BEST afterschool program. The date of student survey response was also used as a control due to an extended data collection period. We also controlled for site-level differences in the means of the total self-efficacy, oral communication, and collaboration composites and the total number of 4th and 5th grade students attending each program site. Means before and after weighting across the three LA's BEST attendance levels are displayed for the continuous variables in Tables A1 and A2. As shown in Table A1, four of the five continuous variables had significant differences across the LA's BEST attendance levels prior to the application of the weighting process. After the weighting was applied, no significant differences remained (see

Table A2). Percentages before and after weighting across the three LA's BEST attendance levels are displayed for the categorical variables in Tables A3 and A4. As shown in Table A3, two of the five categorical variables had significant differences across the LA's BEST attendance levels prior to the application of the weighting process. After the weighting was applied, no significant differences remained (see Table A4).

Table A1

Continuous Background Variables: Means by LA's BEST Attendance Level—Unweighted

Un-weighted means	LA's BEST Attendance (2008–09)			<i>F</i> test	ANOVA results	
	1–99 days (<i>n</i> = 164)	100–169 days (<i>n</i> = 226)	> 170 days (<i>n</i> = 307)		<i>Eta</i>	Sig.
Survey date	138.23	111.08	89.91	10.884	0.174	0.000
Site—Self-efficacy	3.14	3.16	3.15	0.569	0.040	0.566
Site—Communication	3.13	3.16	3.15	4.356	0.111	0.013
Site—Collaboration	3.07	3.09	3.10	4.086	0.108	0.017
Site (4 th & 5 th)—Attendance	124.96	105.61	104.21	9.335	0.162	0.000

Table A2

Continuous Background Variables: Means by LA's BEST Attendance Level—After Weighting

Weighted means	LA's BEST Attendance (2008–09)			<i>F</i> test	ANOVA results	
	< 100 days (<i>n</i> = 164)	100–169 days (<i>n</i> = 226)	> 170 days (<i>n</i> = 307)		<i>Eta</i>	Sig.
Survey date	128.18	123.93	132.78	0.370	0.033	0.691
Site—Self-efficacy	3.15	3.15	3.15	0.111	0.018	0.895
Site—Communication	3.15	3.15	3.15	0.341	0.031	0.711
Site—Collaboration	3.08	3.08	3.09	0.431	0.035	0.650
Site (4 th & 5 th)—Attendance	116.28	113.98	111.07	0.528	0.039	0.590

Table A3

Categorical Background Variables: Percentages by LA's BEST Attendance Level—Unweighted

Background variables	LA's BEST Attendance (2008–09)			Chi-Square results		
	< 100 days (<i>n</i> = 164)	100–169 days (<i>n</i> = 226)	> 170 days (<i>n</i> = 307)	Chi-SQ Value	<i>Cramers</i> <i>V</i>	Sig.
Female	60.4	48.7	59.6	7.809	0.106	0.020
Attendance in other ASP	42.1	34.1	29.0	8.206	0.109	0.017
Ethnicity				12.26	0.094	0.425
Black	9.1	8.8	6.5			
Hispanic	88.4	85.0	87.9			
Language classification				9.028	0.080	0.172
English only	18.9	31.0	23.8			
IFEP	16.5	15.9	16.9			
RFEP	32.3	23.5	27.0			
LEP	32.3	29.6	32.2			
Parent education				8.443	0.078	0.207
Declined/unknown	33.5	22.6	29.3			
LT HS education	32.9	33.2	33.6			
HS grad/no college	19.5	22.6	20.8			
Had some college	14.0	21.7	16.3			

Note. ASP = Afterschool program; HS = High school; IFEP = Initially fluent English proficient; LEP = Limited English proficiency; LT HS = Less than high school; RFEP = Redesignated fluent English proficient.

Table A4

Categorical Background Variables: Percentages by LA's BEST attendance level—After weighting

Background variables	LA's BEST Attendance (2008–09)			Chi-Square results		
	< 100 days (<i>n</i> = 164)	100–169 days (<i>n</i> = 226)	> 170 days (<i>n</i> = 307)	Chi-SQ Value	<i>Cramers</i> <i>V</i>	Sig.
Female	53.7	52.2	57.0	1.293	0.043	0.524
Non-LA's BEST Attendance	38.4	37.6	37.5	0.044	0.008	0.978
Ethnicity				12.43	0.094	0.412
Black	9.8	9.3	8.1			
Hispanic	87.1	85.5	83.4			
Language Classification				0.596	0.021	0.996
English Only	23.2	26.0	24.4			
IFEP	16.5	15.9	15.3			
RFEP	29.3	27.3	28.3			
LEP	31.1	30.8	31.9			
Parent Education				3.976	0.053	0.680
Declined/Unknown	31.9	24.8	25.6			
LT HS education	29.4	35.0	30.8			
HS grad/No college	21.5	21.2	23.7			
Had some college	17.2	19.0	19.8			

Note. HS = High school; IFEP = Initially fluent English proficient; LEP = Limited English proficiency; LT HS = Less than high school; RFEP = Redesignated fluent English proficient.

Appendix B:
Survey Scales

Self-efficacy

Table B1
Self-efficacy Multiple Group Model #1

Factor	Parcel	Items
Self-efficacy	Academic_Positive (AcP)	1, 2, 4
	Academic_Negative (AcN)	3
	Self-Regulation_Positive (SRP)	6, 7, 9, 10, 11, 13, 14
	Self-Regulation_Negative (SRN)	5, 8, 12, 15
	Perseverance_Positive (PeP)	21, 24, 25
	Perseverance_Negative (PeN)	23, 24
	Other_Positive (OP)	16, 17, 19, 20
	Other_Negative (ON)	18

Table B2
Self-efficacy Multiple Group Model #2

Factor	Parcel	Items
Self-efficacy Positive	Academic_Positive (AcP)	1, 2, 4
	Self-Regulation_Positive (SRP)	6, 7, 9, 10, 11, 13, 14
	Perseverance_Positive (PeP)	21, 24, 25
	Other_Positive (OP)	16, 17, 19, 20
Self-efficacy Negative	Academic_Negative (AcN)	3
	Perseverance_Negative (PeN)	23, 24
	Self-Regulation_Negative (SRN)	5, 8, 12, 15
	Other_Negative (ON)	18

Table B3

Self-efficacy

Item #	Item	Subscale
1.	I am good at learning math	AcP
2.	I am good at learning science	AcP
3.	I am not good at learning to read	AcN
4.	I am good at learning to write	AcP
5.	It is hard for me to finish my assignments on time	SRN
6.	It is easy to concentrate when I am doing my schoolwork	SRP
7.	It is easy for me to finish my homework on time	SRP
8.	I am not good at taking notes during class	SRN
9.	It is easy for me to use the library to get information for class assignments	SRP
10.	I am good at using the computer to finish class assignments	SRP
11.	I am good at organizing my schoolwork	SRP
12.	I am not good at remembering information presented in class	SRN
13.	I am good at remembering what I read in my schoolbooks	SRP
14.	I am good at remembering what I read in my schoolbooks	SRP
15.	I am not good at learning the skills needed for team sports	SRN
16.	It is easy for me to live up to what my parents' expect of me	OP
17.	I am good at living up to what my teachers expect of me	OP
18.	I am not good at living up to what I expect of myself	ON
19.	It is easy for me to make friends	OP
20.	I am good at keeping friends	OP
21.	I like it when my schoolwork is challenging	PeP
22.	It is hard for me to finish everything I start	PeN
23.	Even when I try hard, I can't always finish my work	PeN
24.	When something doesn't work the first time, I try again	PeP
25.	It is easy to solve a problem if I try hard	PeP

Oral Communication

Table B4
Oral Communication Model #1

Factor	Parcel	Items
Oral communication	Interpersonal_Positive (IP)	2, 7, 15, 21, 22, 23
	Interpersonal_Negative (IN)	4, 6, 8, 10, 14, 19, 20, 24
	Personal_Positive (PP)	5, 9, 11, 13, 16, 17
	Personal_Negative (PN)	1, 3, 12, 18

Table B5

Oral Communication

Item #	Item	Subscale
1.	I don't talk right	PN
2.	I don't mind asking the teacher a question in class	IP
3.	Sometimes I can't figure out what to say	PN
4.	It is harder for me to give a report in class than it is for most of the other kids	IN
5.	I like the way I talk	PP
6.	People sometimes finish my words for me	IN
7.	I find it easy to talk to most everyone	IP
8.	It is hard for me to talk to people	IN
9.	I don't worry about the way I talk	PP
10.	I don't find it easy to talk in front of other people	IN
11.	It is easy for me to figure out what to say	PP
12.	I'm afraid that kids will make fun of me when I talk	PN
13.	Talking is easy for me	PP
14.	Telling someone my name is hard for me	IN
15.	I talk well with most everyone	IP
16.	I would rather talk than write	PP
17.	I like to talk	PP
18.	I am not a good talker	PN
19.	I wish I could talk like other children	PN
20.	I let others talk for me	IN
21.	Reading aloud in class is easy for me	IP
22.	I am good at sharing my ideas during class	IP
23.	I like to answer questions that people ask me	IP
24.	I worry about asking questions during class	IP

Collaboration

Table B6

Collaboration Multiple Group Model

Factor	Parcel	Items
Oral communication	Peer Interaction (PI)	1, 6, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22
	Process of Collaboration (Pr)	3, 4, 5, 8, 12
	Product of Collaboration (Pd)	2, 13

Table B7

Collaboration Items

Item #	Item	Subscale
1.	I listen to everyone in my group before I make a decision	PI
2.	I enjoy my schoolwork more when I work with other students	Pd
3.	The members of my group help explain things that I do not understand	Pr
4.	The members of my group set goals for what we want to accomplish	Pr
5.	I am more organized when I work in a group	Pr
6.	I admit to the members of my group when I make a mistake	PI
7.	I get upset when the kids in my group say bad things about my work	PI
8.	I feel working in groups is a waste of time	Pr
9.	I know that how I behave affects the other members of my group	PI
10.	I listen to what everyone thinks before I make a decision	PI
11.	I listen to what other people recommend and ask them questions	PI
12.	When I work in a group, my work habits improve	Pr
13.	I learn more information when I work with other students	Pd
14.	I tell the other members of my group when I think they are doing a good job	PI
15.	I try to give helpful suggestions to the members of my group	PI
16.	I treat the other members of my group with respect	PI
17.	I am a great listener	PI
18.	I try to understand what the other members of my group are saying	PI
19.	I do not stay angry or upset for very long	PI
20.	I would rather say what I think then listen to my classmates	PI
21.	I try to focus on solving problems rather than who is to blame	PI
22.	I look for answers that meet everyone's needs	PI