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Feature Article

School-Based Mentoring for Middle Schoolers: The Impact on Mentees and Their Pre-Service Teacher Mentors

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Abstract

School-based mentoring programs are plentiful in number; however, studies measuring the impact of school-based mentoring for students with disabilities are limited. The purpose of this study was to examine the effects of mentoring on the academic and social emotional skills of middle school students with documented disabilities, as well as the impact of the mentor-mentee relationship on college-student mentors. The mentoring program paired four college education majors with four middle school males with documented disabilities who were identified by their teacher as needing assistance with academic and socio-emotional skills. A mixed-methods study was used to conduct an in-depth investigation of the impact of the mentor partnership. Data collection methods included (1) mentor and mentee surveys, (2) observations of mentor-mentee activities, (3) interviews with a science teacher and special education teacher, and (4) science grades. Results from the study support the positive impact that mentoring can have on both academic and social-emotional development of middle school students with documented disabilities.

Keywords: mentoring, middle school, students with disabilities, pre-service teachers, science education, social-emotional skills

Introduction

While mentoring programs have been in existence for multiple years, program models vary greatly. Community-based mentoring programs that provide guidance for youth have been around since the early 1900s with the establishment of Big Brothers, now known as Big Brothers Big Sisters (Big Brothers Big Sisters of America, n.d.), and over the past several years, school-based mentoring programs have gained in popularity as a method of supporting academic performance of students (National Mentoring Resource Center, n.d.). While the number of studies focusing on school-based mentoring programs for middle school youth are limited in number, results support their effectiveness in assisting students with academics and behavioral skills (Converse & Lignugaris/Kraft, 2006; Lampley & Johnson, 2010;McQuillin, Strait, Smith, & Ingram, 2015).

Converse and Lignugaris/Kraft (2009) studied an 18-week school-based mentoring program's impact on 16 junior high school students who

were considered at-risk. Data included office disciplinary referrals, attendance, student survey responses, and mentor interview responses and log entries. Results indicated that participants had a statistically significant reduced number of office referrals, as well as a statistically significant improvement in their attitudes about schools(Converse & Lignugaris/Kraft, B, 2009). Lampley and Johnson (2010) conducted a study on the Linking Individual Students To Educational Needs (LISTEN) school-based mentor program. The LISTEN program was implemented after adult mentors were recruited and trained on mentoring. Mentors were then paired in a one-one relationship with 54 middle school students who were considered at-risk. The mentor-mentee pairs met an average of twice weekly during one school year. Grades, attendance levels, and discipline referrals were analyzed pre-intervention and post-intervention and showed that 49 of 54 participants improved in all three areas, with 51 of the 54 participants showing improvement in their grades (Lampley & Johnson, 2010). In a study completed by McQuillin, Strait, Smith, and Ingram (2015), 74 middle school students were randomly assigned to a brief school-based mentoring program that incorporated evidence-based counseling and academic practices. After mentors were recruited and received training on the school-based mentoring protocol, one-on-one mentoring sessions lasting 45 minutes were held an average of 8 times over a two-and-a-half-month period.Analysis of outcome data indicated a statistically significant impact on the participants' math grades when compared to the 60 middle school students in the control group. Additionally, the participants had fewer discipline referrals and higher life satisfaction as compared to their counterparts (McQuillin, Strait, Smith, & Ingram, 2015).

Despite the numerous school-based mentoring programs available, studies measuring the benefits of school-based mentoring for students with disabilities are difficult to find. Still, some studies suggest that the impact of mentoring for students with disabilities is promising and may benefit academics and psychosocial skills (Lindsay & Munson, 2018). For example, in an exploratory study of parent, peer, teacher, and mentor social relationships of 228 high school students with disabilities**,** Pham and Murray (2016) found that"students with greater mentor inspiration scores had greater life satisfaction" (p. 243). Additionally, a study completed by Leake, Burgstahler, and Izzo (2011) including 119 survey interviews, 12 focus groups, and 11 case studies across five states indicated that formal and informal mentor/mentee relationships were influential in helping culturally and linguistically diverse students with disabilities prepare for transitioning to either higher education or the workforce. Furthermore, online participant survey responses in Gregg, Galyardt, Wolfe, Moone, and Todd's (2017) study of 189 secondary and postsecondary students with disabilities participating in a four-year virtual mentoring program showed participants' satisfaction with the mentoring program and their growth in perceptions of self-advocacy and self-determination.

In an effort to support the academic performance and social integration of middle school students with high incidence disabilities, professors at a college in the Southeast and faculty from an urban public charter middle school established a mentor partnership. The partnership pairs pre-service teachers, some of whom self-reported that they have high incidence disabilities, with middle school students with learning disabilities, AD/HD, or other similar learning differences.

The purpose of this study was to examine the impact of mentoring on middle school mentees' social-emotional skills and their academic performance in science, as well as the impact of the mentor-mentee relationship on college student mentors who were education majors. The academic area of science was chosen due to the school specializing in math and science and due to the mentors providing academic support in science. Permission to conduct the study was

obtained from the college's Institutional Review Board Committee on October 24, 2016.

The research questions were as follows:

1. How does a mentoring program for students with disabilities impact middle school male students' social-emotional skills?
2. How does a school-based mentoring program for students with disabilities impact middle school male students' academic performance in science?
3. What impact, if any, did the mentor-mentee relationship have on college student mentors?

Methods

Participants

The participants of this study included four male middle school students from a public charter school in the Southeastern United States that uses a project-based learning model with hands-on curriculum in mathematics and science and four male pre-service teachers from a college in the Southeastern United States that strongly emphasizes both academics and leadership. Each of the middle school participants had a documented disability; had an Individual Education Plan (IEP) during the 2016/2017 and 2017/2018 school years; required academic accommodations in their science, math, and English/Language Arts classes; attended inclusion science class where the science teacher and special education teaching co-taught lessons; received accommodations of small group testing, extra time on tests, and extra time on science lab experiments; and participated in the mentor partnership based on referrals from their special education teacher and their parents. Due to confidentiality, the middle school participants' disability categories were not shared with the researchers. Three of the middle school participants (Student A, Student B, and Student C) were enrolled in 6th grade and had the same science teacher. The fourth student (Student D) was enrolled in 8th grade with a different science teacher than the 6th graders. The students were chosen to participate in the study based on recommendations from their special education teacher, who made the decision based on the following information: the participants were struggling academically and socially, lacked self-confidence and self-advocacy skills, and had no male role-model in their home. Table 1 describes the mentee's demographics.

Table 1

Mentee Demographics

Mentee	Age	Grade	Race/Ethnicity
Student A	12	6	African American/Non-Hispanic
Student B	12	6	Caucasian/Non-Hispanic
Student C	12	6	Caucasian/Non-Hispanic
Student D	13	8	African American/Non-Hispanic

The four college students were chosen because they were completing a secondary teacher preparation program and were members of a student college club that advocates for K-12 and college students with learning disabilities, ADHD, and other similar learning differences. Two mentors were in the second year of their teacher preparation program, were in the process of completing their third education course, and had completed twenty hours of field experiences in local schools when the mentor partnership began. The remaining two mentors were in the third year of their teacher preparation program, were in the process of completing their fifth education course, and had completed 40 hours of field experiences in local schools. The mentors' demographics and their mentee partnerships are described in Table 2.

Parents or legal guardians of the middle school participants signed a consent form allowing their children to participate in the study. The four

middle school and four college student participants provided written assent. The consent and assent forms described the purpose of the mentoring program, anonymity and confidentiality of all data collected, and the right to withdraw from the program at any time.

Table 2
Mentor Demographics and Mentee Partnerships

Mentor	Class	Race Ethnicity	Self-Reported Disability	Mentee Partner
A	Sophomore	Caucasian Non-Hispanic	N/A	Student A
B	Junior	Caucasian Non-Hispanic	ADHD	Student B
C	Junior	Caucasian Non-Hispanic	ADHD	Student C
D	Sophomore	Caucasian Non-Hispanic	N/A	Student D

Mentoring Sessions

When establishing the mentor partnership, professors and the middle school special education teacher worked together to develop objectives for the program. The three main objectives for the program included the following: (1) help the mentees increase their social skills, (2) teach the mentees self-advocacy skills, and (3) assist mentees with improving their grades. The researchers held two training sessions at the college for the mentors. The trainings were based on several ideas from Elements of Effective Practice for Mentoring (Garringer, Kupersmidt, Rhodes, Stelter, & Tai, 2015). Key elements that were implemented in training sessions included mentor responsibilities (e.g., showing up for each mentoring session on time), ideas for developing meaningful relationships with the mentees, ethical and safety topics, required reporting requirements, and ideas for effectively concluding the final mentor/mentee sessions (p. 35). Additional training was held at the school by the special education teacher and was based on the specific needs of each mentee. The special education teacher continued to brief the mentors before each mentoring session as needed, to inform them of any significant challenges the mentees were experiencing, and the researchers debriefed with the mentors on a monthly basis.

Mentors met with mentees on a weekly basis during the 2017/2018 academic school year, with some sessions being cancelled due to inclement weather, illness, or other activities scheduled by the college or school. Initial mentoring sessions followed the protocol of assigned school-based developmental mentoring (Anastasia, Skinner, & Mundhenk, 2012). All mentors and mentees met after school in one room to play board games and complete other activities to enhance social-emotional, self-advocacy, and self-determination goals. As the mentoring sessions progressed during the second semester, sessions were more prescriptive, with mentor/mentee pairs meeting individually in the mentee's classroom or one-on-one in a conference room, always in the observable view of a school official. The mentors and mentees worked on specific goals in academics, self-advocacy, self-regulation, and other skills requested by the special education teacher (Anastasia, Skinner, & Mundhenk, 2012). Individual mentoring goals were developed with each student in mind. Table 3 describes the main goals for each student.

Table 3

Individual Mentor Session Goals

Mentee	Objective
Student A	Make eye contact with adults when speaking.
Student B	Develop self-regulation skills.
Student C	Develop self-advocacy skills.
Student D	Interact respectfully with peers and adults.

Materials

The impact of the mentoring program on both mentors and mentees was tracked using student outcome measures and formative and summative assessment measures. Science grades were used to measure student outcomes. Formative and summative assessment measures included (1) Mentor Survey, (2) Mentee Survey, (3) Mentoring Semi-Structured Observation Form, (4) Science Teacher Semi-Structured Interview, and (5) Special Education Teacher Semi-Structured Interview. The Mentor Survey included nine questions, six open-ended and three closed-ended questions. Mentors were asked to (1) identify positive outcomes and difficulties or challenges, (2) rate the quality of the match between them and their mentees, and (3) reflect on their objectives, needs, and expectations. To assist students with completing the Mentee Survey, a definition of a mentor was provided with the instructions. Mentees were asked if they ever had a mentor, how they felt about having a mentor, and whether they have an older brother or sister. They also were asked to respond to eight sentences about activities they could do with their mentors, circling a smiley face (☺) if they agreed with the sentence or a frowny face (☹) if they disagreed with the sentence.

The Mentoring Semi-Structured Observation Form included five categories: (1) rapport, (2) organization, (3) mentoring methods, (4) personal, and (5) sensitivity. The category definitions for mentors and mentees are provided in Table 4. Observers were required to familiarize themselves with the definitions, record observable behaviors during the mentor-mentee session, and include comments.

The Science Teacher Semi-Structured Interview and the Special Education Teacher Semi-Structured Interview included 10 short-answer questions about each mentee's academic performance, social skills, motivation, and behavior during the first month of science class and again toward the end of the science class; instructional strategies, impact of mentoring program on mentee's behavior in science class, and area(s) of focus for the following year's program.

Table 4

Observation Categories and Definitions for Mentors/Mentees

Category	Mentor	Mentee
Rapport	Is respectful, fair, and impartial. Provides feedback and encourages questions.	Shows enthusiasm and asks questions.
Organization	Arrives at session at scheduled time. Is prepared with materials and activities for the session.	Is prepared to participate in activities. Asks questions and shares ideas.
Mentoring Methods	Uses relevant methods, aids, materials, techniques, and technology.	Is responsive to materials presented and methods used.
Personal	Displays evidence of self-confidence. Maintains professional comportment and appearance.	N/A
Sensitivity	Exhibits sensitivity to students' personal culture, gender differences, and disabilities.	N/A

Procedures

The four mentees' science grades for each quarter and their final science course grades were collected to measure student outcomes. The charter school uses a 10-point grading scale that is mandated by the state's Department of Education (i.e., A=90-100%; B=80-89%; C=70-79%; D=60-69%; and F=51-59%). The range and difference scores were used to examine variation among quarter grades.

The mentor survey was administered to four mentors during a mentor club meeting during in April 2018. Instructions on how to complete the survey were read by the researchers who left the room to remove any anxiety that their presence might cause.

In April 2018, the mentee survey was administered to the four mentees by the researchers, along with the special education teacher. Working collaboratively, they distributed and discussed the contents of the consent form. Since testing accommodations were included in the four mentees IEPs, the special education teacher was asked to participate to make certain that the mentees received their required accommodations. Mentees were asked two demographic questions: if they have older brothers or sisters and if they have had someone be a mentor to them.

Researchers observed mentoring sessions an average of six times over the course of the school year. The first mentoring session of each semester was observed. Additional observation sessions were conducted in the middle of each semester and at the end of each semester. Observation categories are listed and defined in Table 4.

Semi-structured interview sessions with the science and special education teachers occurred in April 2018. The Science Teacher Semi-Structured Interview and the Special-Education Teacher Semi-Structured Interview questions were sent to the science teacher and the special education teacher prior to their scheduled interview dates. After reviewing the interview questions, the science teacher and the special education teacher requested that their interviews be conducted together. The two of them worked as a team to help students and thought a joint interview session would provide a comprehensive view of the mentoring program's impact on their students.

Results

Student Outcome Measures

Student outcomes were measured using science grades. The grades are presented in Table 5. The final course grade is the mean of the four quarter grades. Based on the state's grading scale, each student received a passing science grade for the academic year. Student B's science grades had the largest amount of variation (Range=20 points), followed closely by Student C's grades (Range=19 points). The least amount of variation occurred for Student A's science grades (Range=5 points).

Table 5

Mentees Science Grades for 2017/2018 School Year

Mentee	Q1	Q2	Q3	Q4	Final Grade
Student A	82	79	80	84	81
Student B	88	72	76	92	82
Student C	76	70	71	89	77
Student D	67	74	78	66	72

Table 6 presents the difference scores among the four quarter grades in science for each student. Difference scores were computed between Q1 and Q2, Q2 and Q3, and Q3 and Q4. The largest difference score occurred between Q3 and Q4 (d=+18) for Student C, followed closely by Student B with difference scores that decreased between Q1 and Q2 (d=-16) and increased between Q3 and Q4 (d=+16). The smallest difference scores occurred for Student A with scores decreasing between Q1 and Q2 (d=-3) and increasing between Q3 and Q4 (d=+4).

Table 6

Difference Scores for Mentees 2017/2018 Science Grades

Mentee	Q2-Q1	Q3-Q2	Q4-Q3
Student A	-3	+1	+4
Student B	-16	+4	+16
Student C	+6	+1	+18
Student D	+7	+4	-12

Mentor/Mentee Surveys

The results showed that 50% of the students reported having a mentor prior to entering college. Only one of the four college students reported that this was their first time being a mentor to someone.

Fifty percent reported having an older brother or sister and 50% reported having had a mentor in the past. All four mentees reported that they liked playing games with their mentors. The majority of the mentees wanted their mentor to help with them with homework (75%), read with them (75%), and teach them how to play a sport (75%).

The reasons why the college students wanted to become a mentor included (1) wanting to give kids something they did not have in middle school, (2) influencing and helping people to be the best they can be regardless of their situation, and (3) realizing how much having a mentor meant to them and wanting to return the favor and help kids.

Mentoring Session Observations

Six mentoring sessions were observed by the researchers over the course of one academic school year. During the initial mentoring session, all mentors arrived in a timely manner, introduced themselves, shook hands with the mentees, and asked the mentees questions about their hobbies in hopes of making them more comfortable. Students A, B, C, and D answered questions and seemed eager to participate. The mentors and mentees began playing a board game to better establish rapport and practice social skills. Each mentee participated in the game; however, Student D appeared to become agitated waiting for his turn. He kept interrupting other mentees as they were participating in the game, and he eventually stood on the table. To help diffuse the situation, one mentor coaxed Student D from the table and walked around the school campus with him while talking with him about his feelings and reminding him of appropriate social skills. The mentor-mentee pair eventually returned to the mentoring room, and Student D was able to participate in the remainder of the session.

In subsequent observations, the confidence level of the mentors appeared to significantly increase. They arrived at each session on time, had necessary materials for the sessions, shook hands with their mentees, and displayed a caring and comfortable yet professional demeanor with the mentees. Each mentee eagerly participated in the sessions and appeared to become more relaxed as the sessions progressed. Students A, B, and C always followed directions from their mentors and answered questions respectfully. While Student D required gentle reminders to utilize appropriate social skills, the reminders decreased as the year progressed.

Teacher Interviews

During the April 2018 semi-structured interviews, the science teacher and special education teacher identified general behavioral descriptions for academic performance, social skills, and motivation to complete classwork. Table 7 presents the behavioral descriptions for the three 6th grade students prior to participating in the mentoring program (during the first month of the school year) and after participating in the mentoring program (toward the end of the school year), as described by the science teacher and special education teacher in the semi-structured interviews.

Changes in specific behaviors were reported for each student. The science teacher saw growth in academic performance for Students A and B from the first quarter to the second quarter. Prior to participating in the mentoring program, Student A would cower in a corner during science class and told the teacher, “I can’t do anything.” His mentor worked with him on how to greet adults; that is, saying hello, looking them in the eyes, and shaking their hands. When the interviewer arrived to conduct the interview sessions with the science teacher and special education teacher, Student A demonstrated the greeting he learned from his mentor. Both remarked on the improvement of

Table 7

Mentee Behaviors Displayed at Beginning & End of School Year

Category	Student	Beginning of School Year	End of School Year
Academic	A	Floundering, Lost, Overwhelmed	Attentive, Succeeding
	B	Displayed lack of interest about consequences for not completing classwork	Made efforts to avoid consequences for not completing classwork
	C	Did not follow the time frame for completing assignments noted in IEP or 504 Plan	Began completing assignments within time frame noted in IEP or 504 Plan
	D	Relied heavily on accommodations	Demonstrated more independence and responsibility for class work
Social Skills	A	Involved in minor arguments with other students	Decrease in number of minor arguments with other students
	B	Difficulty controlling emotions	Informs teacher when upset
	C	Had small number of friends	Made friends with other mentees
	D	Disrespectful to adults	Has become more respectful to adults
Motivation	A	Lacked motivation to complete classwork	Showed concern about completing classwork
	B	Lacked self-confidence	Appeared more self-confident
	C	Not motivated to interact with other students	Made statements about looking forward to spending time with mentor and mentees
	D	Reported being bullied	Reported bullying stopped

Student A's social skills. According to the science teacher, Student B grew the most socially, demonstrating a level of maturity that was not evident at the beginning of the school year. While Student C increased his self-advocacy skills, progress is still needed. His mentor worked with him on recognizing when he needs help. By the end of the mentoring program, Student C would tell the science teacher that he needed help with classwork, but he could not identify the type of help needed. Both the science teacher and special education teacher considered this a major improvement.

The science teacher reported that her school creates a comfortable environment for introducing middle school students to the wonders of science by embedding science into its mission and using a project-based learning model to provide hands-on curriculum. She shared that the instructional strategies that work best with her students are guided notes and self-notes. For students with an IEP or 504 Plan, she found dividing the guided notes into small chunks of information and placing the students in small groups to engage in conversations facilitated comprehension of the material. These students also received one-on-one attention, frequent repetition of concepts, and were given instructional materials prior to the lesson.

The 8th grader, Student D, joined the mentoring program in September 2016 at the beginning of his 7th grade year and had a different science teacher than the 6th graders. The science teacher was unable to be interviewed due to scheduling conflicts. According to the special education teacher, Student D displayed similar behaviors as the three 6th graders for academic performance, social skills, and motivation to complete classwork. He displayed a lack of interest about the consequences for not completing classwork, instigated arguments with other students, and showed a lack of respect for adults. Student D had more than 30 disciplinary referrals at the end of his 6th grade year. During his first year in the mentoring program, his mentor worked on

building rapport and positive social skills to reduce the number of disciplinary referrals. At the end of 7th grade, the number of disciplinary referrals was 20, a reduction of approximately 33%. The number of disciplinary referrals at the end of 8th grade was three, a reduction of approximately 90% since 6th grade. The special education teacher reported that after two years in the mentoring program, Student D began asking questions about the courses he needed to take in high school to apply to college and different types of careers; topics for which he previously showed no interest. He even began helping other students with their classwork. Student D has thrived from the extra attention his mentor provides and eagerly anticipates each week's mentoring session.

Discussion

Analysis of participants' science grades revealed no clear pattern of gains; however, all three 6th grade participants increased their performance in science from the 3rd scoring quarter to the 4th quarter. While Student A's science grades increased by 4 points, Student B's grades increased by 16 points, and Student C's grades increased by 18 points. Additionally, Students A and B passed their general education science course with a final grade of B, and Student C passed the course with a final grade of C. Although the 8th grade participant's grades decreased by 12 points from the 3rd to the 4th quarter, he passed his general education science course with a final grade of C.

Komosa-Hawkins (2010) reports, "Outcomes need to be examined in relation to various program-related factors such as intensity and fidelity of mentoring as well as other variables specific to the individual and match that might be contributing to the observed outcomes" (p. 135). While the use of statistical data analysis techniques is important when measuring outcomes of mentor programs, its use depends on the type of research design or methodology. The purpose of this study was to examine the effects of the mentoring program on science performance and social/emotional skills for middle school students individually, rather than collectively. As a result, the impact of participating in the mentoring program from the perspectives of the mentees was assessed primarily by using anecdotal statements made during observations, as well as their responses to three sentences included in the Mentee Survey. The use of these assessments is based on the recommendations of the special education teacher. Due to the accommodations included in the mentees IEP and 504 Plans, she recommended using minimal formal assessments, especially during the mentees first year participating in the program as 6th graders. Since the charter school begins with 6th grade, mentees faced many challenges such as acclimating to a new educational environment, being part of a new social structure, and learning how to manage their exceptionalities.

Anecdotal information from the science teacher, special education teacher, mentors, and mentees indicate that the mentoring program had a positive impact on mentees' academic performance, social skills, and motivation to complete classwork. The science teacher reported that many positive outcomes resulting from the mentor/mentee relationship were demonstrated by the three 6th grade students in her science class. The most notable outcomes were (1) learning self-advocacy skills, (2) owning their own struggles, (3) accepting who they are, (4) communicating their needs, and (5) accepting that accommodations are not "bad" but are needed to help them be successful. For the special education teacher, the most notable positive outcomes were related to social skills. The mentees displayed higher levels of self-confidence and informed her that they felt "cool" because they were involved in the mentoring program. While the degree of impact may be contributed to other contextual variables (e.g., acclimating to the new school environment and becoming more mature), both the science teacher and special education teacher were adamant that the positive outcomes students demonstrated in academic performance, social skills, and motivation to complete classwork resulted from their participation in the mentoring program.

The mentors reported that the relationships they formed with the mentees and with the other mentors were the most positive outcomes from participating in the mentoring program. Mentor B stated, "I was able to see kids the kids open up with us about their lives, and I was able to learn good techniques in how to mentor." Additional positive outcomes included (1) gaining experience working with kids that will help them become a teacher, (2) participating in the program was a stress relief from college life, (4) learning how to be comfortable with starting and carrying on conversations with mentees to be able to understand their personalities, and what they enjoy doing in-school and out-of-school, and (5) developing genuine relationships and being a person the mentee trusts helps improve their self-confidence and their ability to leave their comfort zone by trying new things and being successful.

Observations of mentoring sessions and analysis of mentor surveys suggest that the four mentors met the characteristics of "highly attuned" mentors due to the mutual respect they shared with their mentees, their genuine interest in the well-being of their mentees, and their flexibility to change their plans based on the needs and moods of their mentees (Pryce, 2012). Additionally, the mentors were observed to become advocates for the students. When Student D was demonstrating behavioral difficulties during some early mentoring sessions, the mentors advocated for him to remain in the program, admitting that although it could be difficult working with him in mentoring sessions at times, they felt the sessions were benefiting him.

The four mentees reported that they enjoyed having a mentor and spending time with their mentor. However, they reported that the best thing about the mentoring program is having someone who understands them. Student A was observed walking around the school grounds with his mentor and reported that he likes talking about video games and getting help with his homework and especially likes listening to his mentor describe what it is like being a college student. Student B was observed playing basketball with his mentor in the school gymnasium and reported that he likes when his mentor is able to have lunch with him, that it makes him feel really "cool" having a college student eat lunch with him. Student C was observed playing a board game with his mentor. He reported that he really likes playing board games and loves it when he wins. According to Student C, beating his mentor in a board game makes him feel like he can win at anything.

One unexpected outcome of the study was the improved behavior skills of Student D, as evidenced by a significant reduction in disciplinary referrals. Reduction of discipline referrals was also a prominent theme in other studies on school-based mentoring in middle grades (Converse & Lignugaris/Kraft, 2006; Lampley & Johnson, 2010; McQuillin, Strait, Smith, & Ingram, 2015). Student D participated in the mentoring program for two years and reported that the first year he really did not want to get to know his mentor because he knew his mentor would eventually leave. He was observed saying unkind things to his mentor and being disrespectful. When he was assigned the same mentor in the second year of the program, he reported being overjoyed. His mentor had told him that he would return the next school year; however, Student D reported that people always say "things like that" and it is never true. When he saw that he had the same mentor as the previous year, he began displaying a positive attitude and acting respectful to his mentor and other adults. He described his mentor as "genuine and kind-hearted." Student D reported that the major change in his life is not getting into trouble all of the time. He is very proud that he only received three disciplinary referrals in 8th grade, as compared to over 30 referrals in 6th grade and 20 referrals in 7th grade, and he plans to reduce the number to zero when he gets to 9th grade.

Limitations

While anecdotal information indicates the mentoring partnerships yielded positive results,

limitations in this study must be addressed. The anecdotal information was limited due to the small number of mentor-mentee partnerships and focused only on the individual impact of the mentoring program. Increasing the number of mentor-mentee partnerships would increase the amount of anecdotal information and provide opportunities to use content analysis approaches such as conventional, directed, or summative. Another limitation was the use of quarterly grades as the only student outcome measure. There are approximately 9 weeks in each quarter, making it difficult to identify a relationship between participation in the mentoring program and science grades. Including grades on tests, quizzes, and homework would provide outcome measures that occur within closer time interval with the mentoring sessions.

Recommendations

There are several future recommendations to make the mentor program stronger. The special education teacher recommends scheduling a meeting at the beginning of the fall term to introduce mentors to their mentees and key personnel who work with the mentees, such as science teachers, middle school counselors, and school administrators. She also suggests that mentors create profiles about themselves to share with the mentees. Other recommendations include scheduling a meeting between parents, mentors, school personnel, and college professors to build rapport and to discuss individual goals for each mentees; allowing mentees to tour the college campus and visit a college classroom and lab to provide them the opportunity to see where their mentors attend school and to compare and contrast the college environment with their school; scheduling more opportunities for successes to be celebrated; and recruiting a more diverse pool of mentors. Additional studies including a larger number of participants also need to be completed to measure the success of the program.

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