

**A Day in the Life of Jackie: A Freshman's Experience of STEM Education at Midwestern
Early College High School, an Inclusive STEM High School**

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**A Day in the Life of Jackie:
A Ninth-Grade Student's Experience
at Midwestern Early College High School**

The Day in the Life studies at Midwestern Early College High School¹ are designed to capture how two students, one male African American 9th-grader and one female African American 12th-grader, experienced a typical school day. The research question was: From the points-of-view of students underrepresented in STEM fields, what are the educational experiences and opportunity structures provided by their school? Two researchers shadowed each student for 2 consecutive school days. We followed the students from the moment they arrived at school to when they left for home, observing them in classes and during informal activities. The classroom observations were guided by two instruments, one that focused on the class-level activities as a whole, and a second that focused on the target student. Using semi-structured protocols, we also interviewed the students and their parents, as well as the principal, guidance counselor, advisors, and STEM teachers. After each case study was written, we provided drafts to the principal, participating students and their parents to check for accuracy, and to approve the case. This case study of Jackie² is the result of this site visit and interpretation of findings.

Midwestern Early College High School (referred to as Midwestern for the remainder of this narrative) is a public secondary school (grades 9–12). From the outside, it is a rectangular, one-story orange brick structure with large office-style windows, easily blending among administrative buildings on the southern edge of a large state university campus. Stepping inside, however, the buzz of energy reveals that this is no office building. The building houses Midwestern Middle School on one side, serving 325 students in grades 6-8, and on the other, Midwestern Early College High School serving approximately 400 high school students. The two schools are separated by a wide, quiet hallway. Rather than locker-lined hallways punctuated by classroom doors, both the middle school and high school areas feature large, open common spaces with cubbies, open classroom areas, and many classrooms and staff offices with floor-to-ceiling windows. The school is filled with light.

Opening in 2006 with a class of 9th graders, Midwestern added a grade each successive year, graduating its first class of seniors in June 2010. The middle school was added in 2013, and a sister high school opened in Fall 2015. The Midwestern schools developed out of a partnership between a state university and a large non-profit research and development institute. Significant seed funding for the opening of Midwestern came from the local university and institute, as well as an Early College Grant from the Bill & Melinda Gates Foundation to support operations and education outreach in STEM.

Midwestern is an Early College High School (ECHS), belonging to a network of over 240 Early College schools in 28 states and Washington, D.C. Through rigorous yet supportive

¹ The names of the school and university used in the case study are pseudonyms.

² The names of the persons in the case study are pseudonyms.

integrated academic programs, schools participating in the ECHS network are able to compress the time required to complete high school course content and earn required credit hours for graduation by using a trimester system. This allows juniors and seniors opportunities to enroll in selected college-level courses. Midwestern students work with a state university advisor to help determine appropriate courses. Students at Midwestern typically take college courses at the state university, although some students attend a nearby community college. About 20% of Midwestern's students do not qualify to take college level courses while in high school, perhaps inevitable given the high bar set by the university for students. However, the students who do take college courses while in high school range from successful to extremely successful (earning many college credits) and the students who do not take college courses are nonetheless college-ready upon graduation from high school. Midwestern has served as a model high school for a STEM learning network supporting the growth and quality of STEM education in the state.

Midwestern is open to students across the state, but is not residential. Students apply through a lottery system for openings in 6, 7, 8 and 9th grade. Students can spend their middle school and high school years at Midwestern, some of their middle school and high school years at Midwestern, or start at Midwestern as a freshman in high school. Midwestern serves a student body resulting from this lottery that is roughly demographically representative of its surrounding area. As shown in Table 1, Midwestern's ethnic and racial demographic proportions align with the surrounding county (from which Midwestern draws over 96% of its students), although Midwestern did have a lower proportion of economically disadvantaged students, English Language Learners, and students with special needs.

Because Midwestern is an Early College High School, Midwestern students typically start with an accelerated college preparatory curriculum that relies on a mastery-based assessment system for the freshman and sophomore years. It requires that students pass the regular state required high school core course exams with a grade of 90% or better, or retake the course, in order to qualify for university coursework during high school. Most students begin their college transition through an "Early College Learning Experience" during their junior year. This unique design allows students to focus on one of a few STEM themes each year. During their early college learning experience, students participate in both high school and college-level STEM coursework designed to support a theme, including STEM and humanities coursework. Students in the Early College Learning Experience also participate in opportunities for experiential learning relevant to the theme in the surrounding community.

The focus on STEM is emphasized through all courses at Midwestern because the school's goal is to develop fluent knowledge of processes related to mathematics, science and engineering in every class. That goal is supported through the Midwestern "Habits of Heart, Habits of Mind," which help students to become effective communicators, active and responsible decision makers, effective collaborators, critical thinkers, and inquiring, engaged learners.

Table 1*2012-2013 High School Demographics for Midwestern High School and surrounding County*

	Midwestern	County
Students Served in Grades 9-12	394	46,454
Female (%)	50.2	48.9
Male (%)	49.8	51.1
Asian (%)	7.6	4.1
Black, Non-Hispanic (%)	28.3	28.5
Hispanic (%)	3.8	5.0
American Indian/Alaska Native (%)	-- ^b	0.3
Multiracial (%)	5.9	3.4
Pacific Islander (%)	-- ^b	0.0
White, Non-Hispanic (%)	54.3	57.8
Economically Disadvantaged (%)	29.4	41.4
Limited English Proficient (%)	-- ^b	5.4
Students with Special Needs (%)	5.1	12.9

Note. --^b Indicates no data reported for particular student groups since membership was less than 10.

Meeting Jackie

We met Jackie, an African American student, early on Tuesday morning. He showed up early that morning, wearing beige khakis, bright blue socks, grey shoes, a blue button up shirt, fleece, and thick rimmed glasses—an outfit seemingly perfect for a prep-school student and one that certainly adhered to Northwestern’s dress policy. Quiet and unassuming, Jackie seemed unfazed about being the subject of our observations for the next two days. He introduced himself politely and when asked if he had any questions about the two-day observation, he casually shook his head and replied, “Nope”.

To our surprise that morning, we noticed that Jackie seemed to have changed clothes on his way to his first class for the day. We were stumped when one observer saw him heading east toward the main corridor as another saw him heading toward the front of the building. By first period, we realized there were two Jackies—well, Jackie had a twin brother, Jason. Apparently, Jackie and Jason come from a family of Northwestern students, following in the footsteps of their older sister, Janice. Janice, a current college student at a selective private university in the northeast, graduated from Northwestern in 2014, paving the way for Jackie and Jason. Through her admission into Northwestern, Jackie and Jason were also granted admission without going through the typical lottery process.

When asked why he came to Northwestern, Jackie said, “Well, it was in part by my parents but this school gave me a better opportunity for college and my future so I decided to come here”. Jackie’s parents, a stay-at-home mother and a trade banker father, shared that it was difficult to relocate their children to Northwestern, away from the friendships they built at their community school. Jackie’s mother added,

He knew he was coming here. He may have wanted to go to a different high school. You know hard decisions that parents have to make. You know your kid would rather be with his friends and you know what that future holds, so you have to make the right decision. So, he knew he was coming here.

Although Jackie and Jason were freshmen, this wasn’t their first year at Northwestern. They transferred the year prior as a part of Northwestern’s first middle school graduating class. Still, this year as freshmen, they were still adjusting to their lives at Northwestern. As noted by Jackie’s mother, “adjusting” was simply a part of her children’s Northwestern experience. She said,

They struggle here way more than they did at their other school as far as their grades and things. Like her [Janice’s] freshman year was difficult... Jackie's was difficult ... but I noticed that as they continue on, they'll do fine... And he'll adjust. I mean, I've seen Jackie adjust to a lot of things... But we just are encouraging and patient until he gets to where he needs to be.

Northwestern’s high academic expectations appeared to be markedly different from Jackie’s former schools; an adjustment period seems likely for any student, particularly one who must balance school and sports. Jackie and his brother played baseball for their neighborhood local high school and practiced nearly every day. When describing her sons’ passion for the sport, Jackie’s mom explained, “They love baseball,” and said that they have been playing since they were four years old. Jackie’s love for the game came through when we asked him what name he would like as his pseudonym for the case study. He said, “Jackie—after Jackie Robinson, the

first Black man to play major league baseball”. Jackie will be interning as a ball boy for the nearby Triple-A baseball team next year. He even noted that playing baseball was a possible career goal, but if that didn’t work out, practicing law would be fine. Jackie’s father also seemed to understand that baseball was a big part of Jackie’s life. He explained, “I know a lot of kids his age are gaming. He's not even into that. What [he]’ll do is watch baseball on [his] computer or YouTube, watching old games on the computer”.

In spite of still finding his footing at Midwestern as a freshman, Jackie seemed to have a good understanding of his responsibilities for school and baseball. A few days prior, Jackie’s ability to play baseball was threatened by his performance and a resulting grade in Algebra II. Jackie had taken Algebra I and Geometry in middle school and was advanced in mathematics for a ninth grader. When he discovered that his grade made him ineligible for baseball, he emailed his teacher and requested an extra credit assignment to increase his grade. The teacher agreed to Jackie’s request and he was able to earn enough points to continue playing on the team. Although most teachers describe Jackie as quiet, he certainly was vocal about being able to be a play on the team.

As a student, Jackie’s teachers agree that he is well-mannered, polite, quiet, and a self-regulated learner. In class, he’s described as “Very meticulous, very neat, very organized” and “artsy”. One teacher noted, “He's actually pretty creative. He's a very good artist, he likes to draw.” In addition to his creativity, Jackie seemed to be on-task in every class we visited. His biology teacher reported,

I find that he's usually someone that I don't really have to check on or worry about. He's usually fairly focused and motivated to work on any task I assign them or if it's a homework assignment that's due the next day or if I've asked him to study or prepare for a quiz, he's someone that I just don't have to worry about.

But one adjustment that Jackie did have to make was to the trimester system. In this system, students take the equivalent of what is normally a yearlong course in a single semester, and there are three per year. Jackie had not achieved mastery level in many of his courses (Midwestern’s pass criterion requires a 90% average or more) and consequently was repeating some courses this trimester. Repeating courses is not unusual for Midwestern students as the trimester system offers students recurrent opportunities to earn the 90% average it takes to pass a course. Despite Jackie’s continued adjustment to Midwestern’s rigor, his parents and teachers agree that he’ll find his way. One teacher offered, “I feel that once it clicks with him, the process of Midwestern, the way it works, I think that he's really going to progress far, because I feel like he is a bright young man”.

Although only a freshman, Jackie appeared to have some specific plans for the future as an upperclassman and, ultimately, college. He explained that Midwestern offered unique opportunities that most schools did not. One of the many unique opportunities at Midwestern was the ability to take early-college coursework at a local university as a junior or senior. Jackie explained further, “If you complete all your high school credits, then you get to take classes at the local university. And with that, if you -- let's say you have two years of college from the local university and then you decide after high school to go to the local university, you're already a junior”. When asked about his plans for college, he shared, “I want to take classes at the local university [as an upperclassman] and I plan to go to a college like the local university where I

can be probably a junior when I [get] there”. And when asked about his preparation for the real world at Midwestern, Jackie explained, “Nothing’s going to come to you ... [easy] so that you [have] to work for it. Like I had to work in my class to get good grades and stuff like that. That was preparing me for college.”

Day 1, Advisory- Rallying for a Cancer Hospital and Creating a Good Resume

On Tuesdays, Jackie started his day with a 45 minute long advisory class. Because some students were still taking mandatory statewide testing, two advisory classes were combined. The class took place in an open space, bounded only by walls that are lined with tall glass windows. Students sat in movable desks with no set formation; some were facing the front of the room and others were not. There were approximately 29 students in the combined class today. To the left of where everyone sat were student cubbies. Students do not have lockers or assigned cubbies, but can use any open cubby for that particular day.

After the students settled down a bit, a female student stood up and started directing the class. She instructed the students to go to a website. Jackie immediately used his computer to go to the site, as did most of the other students. The female teacher then jumped in and started explaining the website in greater detail; she said it helps students raise money for a fundraiser they will be having for a pediatric cancer hospital. By watching videos, students earned points that would count as money towards the fundraiser. The teacher reinforced the importance of using outside partnerships to help with fundraising for the event. She encouraged students to use their email accounts to share the fundraiser efforts with individuals outside of Midwestern through avenues such as Facebook.

Jackie watched a video for 65 points. He said this was the first time he had ever seen or used this site. The female teacher then announced they were going to move into the next part of advisory and work on student resumes. The male teacher sent out several example resumes (Janet, Nathan, Stephanie, Ronald) to all the students, and put two example resumes on the screen, Janet’s and Nathan’s.

Students identified the pros and cons of each resume example. Jackie said he had written a resume for another class and had followed an outline. Jackie took his time reviewing the resumes. Students started getting up to write the pros and cons on the whiteboard. After several students had written on the board, Jackie got up to write his comment. He wrote con for Nathan: “not exciting.”

While going over the resumes, the teacher tried to help the students understand the importance of the content in a resume. Even though Stephanie’s resume was more colorful, her ideas were not well organized. The teacher reinforced the importance of content even though, “it’s easy to look at it and reach a conclusion based on what it looks like.”

The lesson flow observation revealed that in this class 87.5% of the time was spent on task; 62.5% was primarily teacher centered, 0% was small group centered, and 25% was spent on individual seatwork.

Period 1, Day 1, Biology- “Cells Test Review”

The Biology class was located in a different room than normal due to continued statewide testing. Students were sitting at six long tables; there were about 19 students in the class. Four large posters lined the front of the room: “Get real...get a life!,” “Get real...go to college!,” “Get real...game on,” and “Get real...give blood.” Today students were going to review for their test tomorrow. The teacher said each student needed to pick up a dry erase board and marker from the classroom set.

On the screen the teacher pulled up a PowerPoint titled, “Cells Test Review.” Jackie was sitting at a table with one other male student. For the review game, students wrote their answers on a dry erase board, and then on the count of three they lifted their board showing their answers to the rest of the class. The students were encouraged to collaborate when the questions involved drawing a diagram or making a table; then they were told to compare answers with one another and to determine the points their partner should receive for that particular question. The students drew cells in prophase, metaphase, and telophase, and a table showing the characteristics of eukaryotes and prokaryotes. The review appeared enjoyable for the students. After Jackie drew a metaphase cell, the teacher walked over to check on him and his classmate to see if their drawing was correct and how many points they allocated to one another. For extra credit, Jackie raised his hand twice to provide an example for one of the questions, but didn’t raise it quickly enough to get chosen.

The day before, the students had compiled questions for the exam and the teaching assistant, a doctoral student in Biology at a local university, went over those questions as part of the review. Before responding herself, she posed the questions to the class to see if anyone could answer. Jackie was making eye contact and listening quietly. The teacher jumped in and suggested using pictures with the words to help remember the concepts. The teaching assistant said she was going to do address one of the student-generated questions in relation to cancer via a blog post since it was not pertinent to the test, but said that the students would find the information interesting. The teacher then returned to the review game. She wanted to give time for individual questions at the end, so she was going to do a lightning round to get through the rest of the questions. Most students were shouting the answers in unison.

The teacher used the last seventeen minutes for individual questions. She suggested that student’s reference the 17 essential questions posted on Schoology (an online education platform). She advised students to work with someone or on their own. The teacher said she will collect any corrected labs, and reminded the students that their projects are also due tomorrow. Jackie worked individually on his computer. The teacher came over to ask Jackie and his classmate if they had any questions. Jackie asked about one of the test prep questions about equilibrium, and the teacher drew an explanation for him on a dry erase board, using skateboarding as an example of the concept. .

As the class ended, the teacher used Schoology to display the learning targets for the exam tomorrow—she said if the students needed help, they could meet with local university tutors,

visit her during her office hours, or email her with any questions. Following the exam, the next class day would be a “virtual day” where students could work from the website at home.

In this class, 100% of the time was spent on task; 75% was primarily teacher centered, 10% was small group centered, and 15% was spent on individual seatwork.

Period 2, English- Essays on Culture

Students in the English class sat in mobile desks like those in advisory earlier that morning. There were approximately 20 students in the class. At the front of the room, there was a Smart Board and an oblong white board right next to it. A poster on the wall proclaimed, “Cardinal qualities of a Midwestern student: “honor,” “courage,” “responsibility;” The Midwestern habits: “critical thinker,” “inquiring learner,” “collaborator,” “communicator,” “engaged learner,” & “active and responsible decision maker.” There was also a flyer that announced, “Local university engineers for community service.” Students were working quietly on their own computers, but the classroom had two apple desktops if needed.

The teacher told the students to log into Taskstream (an online education platform) to access the writing prompts for today’s class. For the class period, students worked on their reflective essay on culture and became familiar with phrases (prepositional, gerund, appositive, etc.). The phrase assignment was due by the end of third period which gave students the lunch period if needed to complete it. Jackie researched the characteristics of culture for his writing prompt. If students had previously turned in their assignments on time, they could leave the classroom to work at round tables in the multi-use space outside the English classroom, but none chose to work elsewhere. The teacher was available if any students had questions. Jackie and the other students worked quietly and diligently to the end of class, and submitted his assignment.

In this class, 100% of the time was spent on task; 10% was primarily teacher centered, 0% was small group centered, and 90% was spent on individual seatwork.

The next day, the teacher continued the lecture on culture, but in this class they would be observing culture through different mediums (video, paintings, etc.). More specifically, they were going to learn about Frieda Kahlo and her cultural identity. The students were told to pick up the handouts when they walked into class. The class watched an excerpt from a YouTube video on Frieda Kahlo, about two minutes long. While watching the video, students were supposed to think about what made up her cultural identity. Jackie typed bullet points while watching the video; he seemed engaged. The entire documentary was on TaskStream (an online education platform) and they could watch more of it during their free time if they were interested, but they did not have the time to watch the entire documentary, due to testing.

Next, the teacher gave students about 15 minutes to read a passage on Frieda Kahlo, take notes, and write down any questions they had. She said, “As you’re reading, think about what you want to explore further about her culture and how it can help you and your classmates explore your culture further.” Students were working individually and quietly; some were using computers while others were using paper and pen.

After about 15 minutes, the teacher picked several students to start a discussion circle on cultural identity; one of the students was Jackie’s twin brother Jason. On the Smart Board there were

instructions of how to behave in a discussion circle (don't interrupt, no side conversations, watch your airtime, don't hog the conversation, watch your volume, act like you're interested). In order for students outside the circle to speak, they had to tag another student out of the circle. Jackie was listening quietly as the other students brainstormed about what makes up someone's cultural identity and how one's cultural identity differs from how outsiders perceive one's culture to be.

Afterwards, the teacher gave students about twenty minutes to critique the Frieda Kahlo painting on their handout. Jackie started reading the passage while simultaneously glancing at the painting. He worked quietly and diligently on the assignment. The teacher then told the students to pair up with another student to discuss the painting; 9th graders were supposed to pair with 10th graders. Jackie initially paired up with his brother Jason and his brother's partner making a group of three. The teacher assisted Jackie with finding a different partner. Jackie and his new partner stood together and discussed the painting. After a few minutes, the teacher announced the homework for the evening which was to finish the Frieda Kahlo handout. Jackie returned to his seat and referenced the Frieda Kahlo Wikipedia page, before heading to lunch. .

In this class, 100% of the time was spent on task; 44% was primarily teacher centered, 22% was small group centered, and 33% was spent on individual seatwork.

Period 3, Day 1 & Day 2, Algebra II- Flipped Classroom

Algebra II was the period right after lunch. When we walked into the classroom, we immediately saw a sign that said, "Welcome (when you enter this room, learning is fun and cooperation is expected, our positive attitude and mutual respect are part of everything we do and say)." There were approximately 21 students in the class. The desks were arranged in groups of four or five; some of the groups faced the front of the room and others did not.

Jackie sat at a table of three with two other male students. The room was filled with colorful paintings with inspirational quotes made from melted crayons. One piece said, "Be the change you want to see in the world." Another one said, "You're off to a great place today. Today is your day your mountain is waiting. So get on your way." Above the whiteboard, was a sign that said, "I am not your mother...so clean up after yourself."

As students entered the classroom, they were instructed to pick up a piece of paper from the podium and begin working on their warm-up activity. Students read an article from the American Psychological Association on "How much math and science homework is too much?" As they read, students identified phrases most interesting to them. Jackie quietly read the article and used a pen to underline phrases. According to the article, 60 minutes of math and science homework was optimal and self-regulated learning was correlated to academic performance and success. The teacher discussed the importance of learning how to use their time effectively by practicing problems and grading their own work. Jackie was engaged and making eye contact as the teacher continued to lecture.

This was a flipped classroom; students watched lectures for homework and used class time for practice. The teacher told the students to take out their notes from the 20 minute video they were supposed to watch for homework and walked around checking everyone's homework for credit. Jackie glanced down and reviewed his completed homework. Next, she reviewed problems students had questions on and then began the lesson for the day. Today's lesson focused on

simplifying radicals; the teacher walked around the room and handed out practice problems on blue cards to each table and asked students to work out the problems directly on their desks with a dry erase marker.

The teacher encouraged students to work together on their practice problems; however, only students who had finished their homework from last night could participate in the activity; this included Jackie. Those who had not, were required to watch the video lecture and take notes. One student at the table was taking notes from the video, so Jackie and the other student divided up the practice problems between each other and worked silently on their practice problems. Jackie frequently referred to his paper homework from the previous night.

As the teacher checked with students, she eventually made her way to Jackie. She walked him through his problem and helped him figure out why it was incorrect, assuring him that she would return later. Some students were talking and working on the problems together while others worked independently.

The teacher then asked which students wanted to write one of their problems on the board. No one volunteered, so the teacher selected a female student to write her problem on the board. That particular student was enthusiastic earlier when she found out she had answered her problems correctly. Jackie seemed engaged while she solved the problem on the board and then returned to his practice problems.

The teacher continued to walk circulate, and returned to check on Jackie, clarifying and walking him through another problem. She checked with him one more time before the class period ended. The class put their blue cards in a pile on their desks and received a multiplying radical worksheet for homework. Jackie cleaned off his desk with a cloth and neatly piled his blue cards on his desk.

In this class, 100% of the time was spent on task; 38% was primarily teacher centered, 0% was small group centered, and 63% was spent on individual seatwork.

The next day, the teacher instructed the students to take out their homework. If it was complete they could start working on a maze worksheet. The students checked their homework through the online portal (they also used this to watch the class lectures). Jackie worked through his homework problems; he hadn't have time to do them because he had an exam and a project due in Biology. Before Jackie could start the classroom assignment, he needed to finish his homework—which he was diligently working on.

The teacher went over their homework and answered any questions. Jackie changed his homework answers when he saw the answer key, but still worked through the problems. He seemed to want to make sure he understood how to do them and obtain mastery that requires understanding. The teacher then discussed simplifying radicals and passed out task cards on radicals.

Jackie and the student sitting next to him divided the task cards among themselves. They commented on how most of the problems required division—Jackie looked frustrated when working on a simplifying problem. He pulled out his past worksheets to guide him. The student sitting next to Jackie asked him if he thought a problem was right. Jackie said he thought so. The teacher then came over to help Jackie work through a problem. To engage the whole class, the

teacher wrote the problem Jackie was having difficulty with on the board and asked the class how to simplify the radical; a few students called out.

The teacher checked on Jackie and the students at his table once more. She noticed Jackie didn't fully finish a problem, so she walked him through the steps to complete it. During the last few minutes of class, Jackie chatted with the boy sitting next to him, watching a basketball clip on his computer. The teacher handed out the homework and emphasized the need to check answers online. Tomorrow would be a virtual day; students would access their class lectures and assignments on the computer in the comfort of their own homes. She made it clear that she would be assigning additional homework that would also be due on Monday.

In this class, 100% of the time was spent on task; 33% was primarily teacher centered, 0% was small group centered, and 67% was spent on individual seatwork.

Period 4, Day 1 & Day 2, Spanish- Conjugation and Translation

The Spanish class was right next door to Algebra II. There was a whiteboard on the front wall of the room and a poster that said, "habits of mind and work: an inquiring learner, critical thinker, engaged learner, active and responsible, effective collaborator, and effective communicator" and a picture of an owl that said, "I'm watching you". The students were sitting in mobile desks in facing different directions. There were approximately 28 students in the class.

The teacher began with a google document that said, "Spanish 1 Homework and Assessments." Jackie was quiet and attentive. For the review, students had to go through each Spanish sentence and identify the verb and what form it should be in. A few students in a circle were talking amongst themselves about the verb conjugation. Students called out the word conjugations as the teacher went over each sentence. The teacher challenged the students further by asking them to conjugate verbs in different ways.

The Spanish teacher then randomly assigned a few students to translate a sentence from English to Spanish and write it on the whiteboard. Jackie pulled out his notecards to review for the quiz. The teacher went over the sentences and Jackie typed them into a google document. Some students were having side conversations while the teacher went over the sentences. Students then got dry erase boards, markers, and rags, so they could do a quick reviews using Quizlet (an online education platform). They were given a verb in Spanish and wrote the word's meaning in English on their dry erase board.

Jackie didn't grab a dry erase board and closed his computer, but was listening quietly and reviewing his flashcards. The room was getting louder; the students were talking amongst themselves while the teacher spoke to a student. It was now time to take the quiz. The students had twenty minutes to complete it. When the students were done taking the quiz, they watched an episode of "Que hora es?" on YouTube. "Que hora es?" was a comical, very dramatic soap opera in Spanish. The students were laughing and everyone seemed to enjoy the video.

In this class, 87% of the time was spent on task; 80% was primarily teacher centered, 0% was small group centered, and 20% was spent on individual seatwork.

The next day, the teacher started off class by telling the students how to say April Fool's Day in Spanish. They were having another quiz today, but this time it was on question words and how to create questions in Spanish. The teacher started off with a review activity where students were given answers in Spanish and wrote out what the questions would also be in Spanish. Jackie pulled up a google document to start working on his questions. The teacher came over to help him and two other students with the first question—Jackie referred to a list of words from Taskstream to create the questions. He sat quietly while he did his work. The teacher encouraged the students to help each other out.

Then it was quiz time, Jackie said he didn't know they had a quiz and seemed a bit flustered. Students took about 15 to 20 minutes to complete the quiz. Afterwards, the teacher did an activity on numbers and told students to get a dry erase board, marker and rag, so they could write the numbers in English or Spanish depending on what the teacher called out. Students could reference Taskstream which had the list of the numbers while doing this activity. The teacher then put on the game Kahoot that involved connecting to an online site with multiple choice questions. For this game, they had to pick the correct Spanish or English number. All the students seem to be engaged in this activity, especially Jackie, which they played until the end of class.

In this class, 89% of the time was spent on task; 72% was primarily teacher centered, 0% was small group centered, and 28% was spent on individual seatwork.

Conclusion and Implications

What did Jackie learn?

Jackie had a rigorous workload at Midwestern. Students were expected to achieve at least a 90% to master a course and re-took a course until mastery (90% or above). This was required if they wanted to take college level courses in their junior or senior year. Before students could take college courses, they had to receive mastery in all the courses required to meet graduation requirements. The students' classes followed a trimester schedule and were organized to mirror the university schedule. It was challenging for students to obtain mastery their first time through a course, but not necessarily expected that they achieve mastery very quickly. Students usually spent their freshman, sophomore, and junior years working on mastery in their required high school courses. Despite Jackie's apparent frustration at times with this system, his parents saw the value and importance of the mastery system. Jackie's mother noted,

So, I think it challenges them in order to get not just the A but excel even higher than that. And it carries forth as they get ready to go in college; it challenges them, so then that way they're just not trying to pass. It's more than just passing. It's trying to excel.

With integrated technology, innovative and flexible teaching methods, teachers covered the necessary material and provided ample supports to students. Teachers used online forums such as Schoology or TaskStream to post class materials, homework, practice materials, and video lectures. For instance, Jackie's Algebra II course was a flipped classroom where students watched class lectures in the evening and class time was used for hands-on practice, questions,

and review. Teachers were also available for individual tutoring, could be contacted by email at any time, and provided additional outside resources. Jackie's biology teacher partnered with the local university and had university students available as additional tutors for the upcoming exam.

What happened from a social, emotional, and developmental point of view?

Because Jackie is a freshman at Midwestern, he's still adjusting to the "Midwestern way of life." The transition period from middle school can be challenging for many students. At Midwestern, classes are 90 minutes long, and the school follows a trimester system. Students must often leave behind friends and may miss extracurricular activities that Midwestern doesn't offer. However, Midwestern and neighboring high schools collaborate and share resources, so students still had the opportunity to participate in extracurricular activities on other campuses. It was apparent that baseball was a huge part of Jackie's life, and continuing to play on his neighborhood high school team with old classmates seemed important. Jackie's mother commented:

I remember what [happened with]...our daughter and how they encouraged her to continue on with marching band. When she just made a simple request, asking if it was okay. So, the fact that they do allow them to continue their athletic experience which is something that you'll always remember when you're in high school."

Jackie struggled with the time management skills needed to balance extracurricular activities with new academic challenges. He mentioned difficulty in finding balance with his school work and baseball practice, but was still motivated and determined to finish his assignments, often staying up late into the night or completing homework assignments during his lunch period. He was making it work.

Midwestern also allows students a great deal of autonomy. There are no bells to signal the end of classes, students don't have to ask permission to use the restrooms in the middle of class, and students are trusted to use their individual laptops with little monitoring. Adjusting to this freedom was challenging for Jackie who said he wanted more structure. He sometimes felt the classroom was too noisy, and his ability to concentrate compromised by students talking out of turn or talking amongst themselves. However, the autonomy granted to students in the classroom was part of a larger expectation that students become increasingly responsible and independent. For example, while the school maintained a strong array of support systems, students typically had to take the initiative to access these systems. Jackie was reserved and needed more encouragement. Jackie's mother briefly touched on this,

Well, if they want tutoring, they can get tutoring. If they want to talk to the teachers, they can talk to the teachers. They have many opportunities to get their grades up, all of those kinds of things. So, it's there. It's getting them to let me know what's going on. Some things I can look on PowerSchool and tell what's going on but, "Oh, yes, Ma, I did that," and no, and they didn't do that. "Oh, yes, I went to office hours. I did at lunch time," you know, and then it's like you find out they didn't really do it at lunch time. So, I mean, the support is there. It's learning how to get them to take advantage of the support that's here.

Even though Jackie is just beginning his work as a Midwestern student, his parents and teachers believed that he had the potential and ability to flourish.

Where will Jackie's experience at Midwestern take him?

The decision to go to Midwestern was mostly made by Jackie's parents. His older sister had gone to Midwestern, experienced a similar transition, and was now flourishing at a prestigious university and had a substantial scholarship. Her interest in STEM was ignited at Midwestern and she is now majoring in both Biology and English. After seeing their daughter's success at Midwestern, Jackie's parents thought that it would be best for Jackie and his twin brother to attend as well. Jackie's parents' decision to send their children to Midwestern was also affected by the school district they're currently living in,

The school district that we're in is really a failing school district. It's not a good school district. And even though they were all honor students, straight A students at that school district, I knew that they weren't getting what they should be getting...so, we wanted them out of that failing school district, and so that's why we were more interested in Midwestern.

Jackie seemed to understand the greater opportunities Midwestern provided. He was excited by the idea of being able to graduate high school and possibly start college with enough credits to be a junior because he currently plans on going to law school after college. Even though Jackie found the mastery system frustrating at times, he was continuously challenged and held to high expectations. Through his perseverance and self-discipline, Jackie may find great success at Midwestern, college, and beyond. In the meantime, he was playing baseball and absorbing all he could about the game, as he adjusted to Midwestern Early College High School and its high expectations.