High Academic Achievement in a Virtual and Blended Learning Environment

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Executive Summary

This case study examines evidence to answer a simple question critical to the future of education: Is virtual learning associated with successful outcomes for high-achieving, college-bound students? In 2017, two organizations, Total Package Hockey Center of Excellence (TPH) and Edmentum’s EdOptions Academy, collaborated to create an education system that would support the high levels of academic achievement required for student-athletes to be successful in K–12 education and accepted into NCAA programs at top universities. A flexible schedule to accommodate the demands of sport-specific training and competition, coupled with a high-quality virtual learning program, was key to the overall success of these student-athletes. Even though the TPH and EdOptions Academy partnership has only been in place for about four school years, both middle and high school student-athletes have already been accepted to top university programs, including the University of Notre Dame, University of Wisconsin, University of Michigan, Arizona State University, Boston University, and the University of New Hampshire.

This case study first examines the foundation of academic research that the EdOptions Academy virtual program is designed upon and then analyzes data from a combination of internal and external sources, including course-completion rates, course grades, formative and summative test scores, survey responses, and other data. The findings documented in this study clearly demonstrate that TPH student-athletes consistently perform at high levels of academic achievement that matter to both K–12 and postsecondary success. One example of this high academic achievement is that TPH student-athletes outperform the national student average on standardized assessments like SAT and ACT tests. The average TPH student-athlete’s SAT score is 1,280 (212 points higher than the national average), and the average TPH student-athlete’s ACT score is 25 (4 points higher than the national average).
Another important indicator of postsecondary success is student grade point average (GPA). According to the study “Grade Inflation and the Role of Standardized Testing,” published in the book *Measuring Success: Testing, Grades, and the Future of College Admissions* (Hurwitz & Lee, 2017), the U.S. national GPA went up from 3.27 to 3.38 for high school graduates who finished from 1998 to 2016. TPH student-athletes have consistently outperformed the national average, with an average GPA of 3.6 for the 2019–20 school year and the first semester of the 2020–21 school year.

In addition to outperforming the national averages on SAT and ACT scores and GPAs, TPH student-athletes also demonstrate consistently high performance on course grades, with an average course grade across the core subjects of math, English language arts, science, social studies, and world languages of 90.5 percent.

### Methodology

#### Data Sources

This study focuses on the achievement of TPH student-athletes as measured by performance indicators from several data sources:

- Course-completion data were extracted from Edmentum’s student information systems (SIS) for all enrolled TPH student-athletes from 2017–21. These data include 9,147 courses taken by TPH student-athletes, including core, elective, and career and technical education (CTE) courses.
- Course grade and course activity data were extracted from Edmentum’s internal databases for enrolled TPH student-athletes from 2017–21. In total, 493 students taking 3,941 core courses are included in the analysis.
- SAT and ACT scores were provided by TPH administration for TPH student-athletes from 2017–21.
- The average TPH student-athlete GPA was provided by TPH administration for the 2019–20 school year and the first semester 2020–21 school year.
- All EdOptions Academy students are provided an option to take a survey when they reach 80 percent completion in their course. The survey provides information on how students interact with their instructor during their course and how they feel about the support they received from their instructor. These longitudinal student survey data were collected from all EdOptions Academy students, including TPH student-athletes, from 2019–21. A total of 7,652 student responses are included in the analysis.
- EdOptions Academy teacher qualification data are for all EdOptions Academy teaching staff, including TPH teachers, for the 2020–21 school year.
Courseware, Edmentum’s standards-aligned digital curricula, is submitted for external review and approval by independent organizations and experts to ensure that it is based on effective pedagogical principles and that it comprehensively covers state and national standards of learning. Courseware approval and review data included in this study are from submissions between 2014–20.

TPH Centers of Excellence and EdOptions Academy

While the TPH and EdOptions Academy program started small, enrolling about 50 students at the first two TPH Centers of Excellence in Hazel Park and Canton, Michigan, it has strategically expanded each year, and today, it has more than 460 students at nine Centers of Excellence (CoE) locations in twelve states. The Total Package Hockey (TPH) program initially focused on the sport of hockey, but it has expanded to include athletes in other sports and has evolved its name to TPH Center of Excellence to refer to its academy-style, focused environment where dedicated student-athletes study, train, and play. TPH’s student-athlete training program is geared toward impacting each individual in four ways: (1) as a player of a particular sport; (2) as an athlete striving to develop strength, speed, athleticism, endurance, and power; (3) as a student looking to become an independent, self-starting college freshman; and (4) most importantly, as an individual, seeking success in the ultimate game—the game of life.

Regardless of the sport, TPH’s training blueprint emphasizes: (1) training the body, by promoting athletic qualities and sport-specific skills, habits, concepts, and details; (2) teaching the mind, through daily mentorship, athlete-specific learning, and added-value experiences; and (3) fostering a learning and training environment that powers the heart. As a result, student-athletes love “the process” more when they leave the CoE than when they arrived.

Student-athletes who attend the Center of Excellence do so as individual participants from various youth organizations or as members of a team, going through the CoE as an entire group. Regardless of their entry into the CoE, each week, student-athletes enjoy 20-plus hours of focused academic time, a combined 8 hours of sport-specific training and instruction, video analysis, an athlete-friendly lunch,
access to TPH's 16-week mentorship program, and numerous social and real-world experiences such as field trips and community service projects. The motto of the Center of Excellence is *study, train, play,* and TPH believes its holistic approach allows for aspiring elite student-athletes to do just that.

**EdOptions Academy’s Research-Based Virtual Learning Model**

Virtual learning models incorporate pedagogical practices that can both reflect and contrast with traditional classroom techniques. Research suggests that good teacher-student relationships are important for maintaining students' interests and academic engagement in learning (Maulana et al., 2013). Students who perceive their teachers to be more supportive have better achievement outcomes on standardized math and English tests (Gehlbach et al., 2012). EdOptions Academy's blended and virtual instructional model is specifically structured to develop and foster strong, effective student-teacher relationships. Building these effective relationships begins with the initial welcoming of students to the class and persists throughout students' academic experience.

**Establishing Student-Teacher Relationships**

Students are welcomed to their EdOptions Academy virtual classroom through a personalized video message from their course teacher that begins the relationship by allowing students to see their teacher as a person who cares about the course subject, students, and their success. When students feel welcomed and comfortable, they develop a sense of community, and they are more receptive to learning (Brown, 2010). EdOptions Academy teachers schedule weekly virtual classroom lessons using Zoom video-conferencing technology. In the virtual classrooms, teachers and students engage in inquiry-based learning strategies to explore lesson concepts and content. Research has shown that, in a virtual learning setting, instructors can enhance collaboration and establish a community of inquiry through the instructional methods that are used (Mandernach, 2009). Professional learning communities (PLCs) are promoted through a variety of techniques that have been found to enhance social presence from instructor to student and between students. These PLCs can be fostered through the use of technology on behalf of the instructor to personalize feedback and interactions and to establish the social presence that is critical to knowledge creation. Technology provides instructors with an opportunity to personalize the learning environment and enhance overall student engagement. EdOptions Academy teachers maintain scheduled office hours where students can drop into Zoom Rooms with their teacher for additional individualized instructional support, for engagement and motivation, and for the opportunity to build positive student-teacher relationships. Research demonstrates that students who received personalized feedback from their instructors felt more satisfied in the learning experience and achieved larger academic gains than students who did not (Gallien & Oomen-Early, 2008). In a longitudinal survey of 7,652 EdOptions Academy students from 2019–21, 94 percent of students felt their teacher provided the support needed for them to be successful, and 96 percent said their teacher cared about their success.
Virtual Instructional Tools and Techniques

EdOptions Academy instructors leverage a variety of virtual instructional tools and techniques, including online video technology to record instructional sessions to extend the presence of the instructor and personalize the content and online classroom experience through these just-in-time asynchronous video resources. Instructor-created video content is a straightforward strategy to increase the level of engagement and satisfaction experienced by students (Underdown & Martin, 2016). These videos, recorded once and used in each course taught, create the quasi-presence of the instructor, which many online students complain is missing in the virtual classroom (Miller & Redman, 2010).

Students are expected to work consistently and complete at least one lesson and accompanying assessments in each class weekly (depending on the class, this requirement may vary). Each class has a pacing chart in the student information system (SIS) that details what students should complete each week to stay on pace. Similar to the duties of a classroom teacher, the responsibilities of EdOptions Academy teachers include monitoring student progress and performance on course assessments.

EdOptions Academy instructors leverage Zoom video-conferencing as their primary instructional tool for both live lessons and office hours. Additionally, EdOptions Academy teachers use a variety of virtual communication tools to meet students where they are. In the survey of 7,652 EdOptions Academy students from 2019–21, 46 percent of students said they use texting, 20 percent use phoning, 15 percent use instant messaging (IM), and 87 percent use emailing to communicate with their teacher.
Virtual Teacher Qualifications

EdOptions Academy employs highly qualified, state-certified teachers who are experienced in teaching online courses in a virtual environment. All EdOptions Academy teachers have a bachelor's degree from an accredited institution, a valid state teaching certificate for the states and subjects they teach, and experience teaching in both traditional and virtual classroom settings. Many teachers hold multiple certifications, advanced degrees, and endorsements. Specifically, EdOptions Academy teachers have an average of 14.8 years of teaching experience, 73.6 percent have a master's degree or higher, and 93 percent have certifications in multiple states. All teachers complete an EdOptions Academy rigorous training program to ensure that best practices in virtual instruction are implemented. EdOptions Academy's Professional Learning department ensures that teachers have ongoing growth opportunities through a professional learning community with monthly professional development sessions and an annual summer learning conference. These professional learning opportunities ensure that all teachers stay up to date on the latest pedagogical research and instructional strategies.

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
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</tr>
<tr>
<td>Bachelor's Degree</td>
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<td>26.4%</td>
</tr>
<tr>
<td>Master's Degree</td>
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<td>64.0%</td>
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<tr>
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</tr>
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<td></td>
</tr>
<tr>
<td>Multiple State Certifications</td>
<td>272</td>
<td>93.0%</td>
</tr>
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</table>
Teacher Evaluation and Continuous Improvement

EdOptions Academy's academic department chairs ensure that all EdOptions Academy teachers are equipped with sufficient information and resources needed for instruction. The department head reviews teacher performance three times per year (during the academic year of August through June) to ensure that instruction consistently meets high standards. Reviews consist of one or more walkthroughs, feedback, evaluation checklists, and a final summative evaluation. Walkthroughs consist of checks on the teachers' certification for good standing and the use of technology for synchronous and asynchronous communication purposes (Zoom classrooms, email, IM, Web conferences, live sessions, threaded discussions, and file-sharing activities). Instructional reviews examine teachers' use of innovative strategies, the quality of their feedback and monitoring of students, and the degree of their responsiveness to students with special needs.

Academic Advisors

Because TPH student-athletes spend a significant amount of time each day at their sport training facility, each facility has an Academic Advisor present to work with students one to one and face to face. The Academic Advisor is typically a certified instructor but not the subject-specific general education teacher of the students. The Academic Advisor supports students through regular check-ins to ensure that students are making academic progress in their courses, are staying on pace to complete their work, and are receiving both the academic and the social-emotional support they need to succeed. Academic Advisors are a critical resource to provide students with the direction and support needed to stay on track to meet their academic and postsecondary goals.

The Research Base Behind Edmentum Courseware & Learning Platform

Courseware, Edmentum’s standards-aligned digital curricula and virtual learning platform, is designed to be flexible, dynamic, and personalized to meet the unique needs of each learner, and it is built on a foundation of research-based design principles and implementation, including mastery learning, active and engaged learning, deliberate practice, explicit instruction, scaffolding, and metacognitive strategies.

Mastery Learning

Mastery learning, which has also been called competency-based learning, focuses students on content that they have not yet mastered and enables learners to work at their own pace to master new concepts. It establishes an efficient investment of learning time because learners spend less time on what they already know and efficiently invest time on what they need to master (Le et al., 2014). It supports the positive message that every student, if given enough time and the right approach, can learn well-defined skills to the level of mastery (Anderson & Krathwohl, 2001). Students progress through learning objectives at their own pace, demonstrating mastery through small assessments as they work. Assessments provide information to allow learners and their teachers to make decisions that best suit each learner. This ensures that the pace of instruction matches what each student is ready to learn (Haynes et al., 2016; Le et al., 2014). Edmentum applies mastery learning principles beginning with carefully chosen mastery objectives, then defines the assessment experience that will best demonstrate
mastery, and then defines a learning experience that drives students toward the ability to demonstrate mastery of the learning objective. This approach to instructional design is known as **backward design** (Wiggins & McTighe, 2005). Mastery objectives are aligned to national and state standards to support the mastery required for course completion and high-stakes assessments. Unit pretests assess each unit and provide teachers and students with information about what students have already mastered. Learners have control over time, place, path, and pace of learning, which supports them in impacting their own learning. Courseware allows students to speed up when they understand material and slow down or repeat material when they need more time to understand.

### Active, Engaging Learning

Active learning is an instructional method that involves students in responding to instruction, encouraging them to manipulate information and to interact more deeply directly during the learning process. Active learning contrasts with a traditional lecture format, in which a teacher delivers information to a classroom of students who passively receive it (Bonwell & Eison, 1991). Techniques that encourage active learning tend to be better at promoting higher-level learning and skills. Hattie’s (2009) research shows that, as students become active in the process of their own education, learning outcomes improve. Edmentum’s learning design provides multiple representations and ways of interacting with content, helping students develop rich understanding and deep learning.

- Warm-up items activate prior knowledge and encourage learners to make connections.
- Check-for-understanding interactions are embedded frequently within lessons, providing immediate feedback and explanation on correct and incorrect answers.
- Highlighter tool functionality provides ways for learners to interact with readings.
- An in-course notebook tool allows learners to take notes and record observations.
- Real-world examples and applications make learning relevant.
- Science courses utilize simulations and virtual and augmented reality labs to engage students in active learning.

### Deliberate Practice

Deliberate practice refers to intentional, highly structured, and sustained student effort that impacts knowledge and skill acquisition and retention. The learning curve relies on the link between practice, reinforcement, immediate feedback, and performance (Campitelli & Gobet, 2011; Hattie & Yates, 2013). When learners engage in deliberate practice, they are motivated by a compelling desire to improve. Therefore, they exert the effort to practice until they master the content. Research shows that deliberate practice is a powerful influence on student achievement because initial learning can be consolidated from surface knowledge to long-term memory (Hattie, 2009; Hattie & Yates, 2013). Edmentum's learning design embeds deliberate practice and feedback within lesson tutorials. Integrated interactions allow learners to immediately apply new knowledge to gain higher levels of understanding. Students receive immediate feedback on correct or incorrect answers, including an explanation that encourages them to learn from their mistakes and successes. Extended practice provides additional application of recent
learning through interactions that are constructed to support and build mastery and ordered to build from basic foundational skills to the application of higher-level learning.

**Explicit Instruction**

The term *explicit instruction* refers to a “group of research-supported instructional behaviors used to design and deliver instruction that provides needed supports for successful learning through clarity of language and purpose, and reduction of cognitive load” (Hughes et al., 2017). Edmentum designs each tutorial to open with an objective so that both learners and educators know the goal of the lesson and the material that is assessed. The introduction of new content is carefully managed to avoid cognitive overload. Guided problems and examples provide models to support learning through worked examples that reveal the thinking process. This structure has been found to have a high impact on student learning (Archer & Hughes, 2011). The gradual release of responsibility framework moves learners from guided to independent work in a stepwise fashion. Within each lesson, learners begin with an overview of the concept, interact with guided examples, and apply their learning in items that check for understanding. Mastery test performance indicates how well learners can work independently with the content.

**Scaffolding**

Instructional scaffolding is a process where instructional supports provide aid to students in mastering content until they can apply new skills and strategies independently (Dickson et al., 1993; Rosenshine & Meister, 1992). Scaffolding is particularly important when students are first encountering new material and as they are developing a mastery of the content. The supports can be gradually removed as students develop skills to complete work independently. Scaffolding reduces barriers to learning by removing unnecessary complications or difficulties. Vygotsky (1978) described a zone of proximal development, where the level of difficulty or challenge is balanced with a learner’s level of proficiency so that the work of learning isn't too difficult or too easy. When learners are working on content in which they are proficient that holds little challenge for them, they become bored or apathetic. When learners are insufficiently proficient with material and it's too difficult or challenging, they become anxious or feel that they can never be successful with their work. When learners are outside of this optimal learning zone, the time they are investing is not productive. Scaffolds are additional learning supports that can move learners into more challenging material where they are not yet proficient. The scaffolds help learners achieve an appropriate level of productive struggle (Vygotsky, 1978). Courseware includes a large variety of interactive tools that scaffold learners. Learners may choose when to use most of the scaffolds so that they are implemented when learners need them, not as learners become more proficient. This powerful ability to choose support when it's needed is intrinsically motivating and empowering. Some tools in Courseware that scaffold learning include:

- **Glossary** links pop up to support vocabulary development.
- **Audio** support is available to read text and provide support for struggling readers.
- **Translation** tools support English language learners.
- **Tables of contents** help learners navigate tutorials.
- **Resources** may also include short summaries of key instructional material.
- A **dictionary** provides definitions for any text the learner enters.
- A **reading tool** allows students to select any text on screen to read aloud.
- An onscreen **calculator** is available as a handy alternative to a handheld calculator.
- **Math tools** include a **graph tool** to plot $x, y$ functions and data and a **data plot** tool for box plots and histograms.
- The **highlighter** tool allows students to emphasize key points in any text to create meaningful engagement.
- **Video** augments instruction and allows students to explore concepts.
- **Guided Notes** provide layers of support, allowing learners to record and summarize key pieces of information from the lesson. As Hattie (2009) notes, summarization is one of the most powerful learning strategies.

## Metacognitive Strategies

*Metacognition* means thinking about one's thinking, and in an educational context, it refers to students’ self-understanding and knowledge about themselves as learners. Students use metacognitive skills to select, monitor, manage, and evaluate cognitive processes to self-reflect on how they learn and strategically employ the most effective learning strategy in their work. Thoughtful self-monitoring practices are associated with better learning (National Research Council, 2005, 2013). Metacognition skills enable students to

- understand the goals of the learning process;
- reflect on and determine the best strategies for learning;
- monitor their own understanding of a specific topic; and
- reflect on misunderstandings that may be preventing a full understanding of academic material.

Instructional strategies that utilize metacognition have been found to be strongly associated with positive educational outcomes (Hattie, 2009, 2012). Students with strong metacognitive skills outperform students who don’t have the ability to reflect on their learning strategies. “Strong learners can explain which strategies they used to solve a problem and why, while less competent students monitor their own thinking sporadically and ineffectively and offer incomplete explanations” (National Research Council, 2013). Courseware is designed to clearly draw student attention to common misunderstandings and identify big ideas that underpin learning so that students can productively apply those big ideas throughout the course and better prepare themselves for success in higher-level courses. Think-aloud activities reveal modeled thinking so that learners can reflect on that thinking and their own. Think-aloud activities appear in videos, as instruction, and as interactions where learners see the thinking of other students and decide whether they agree or disagree. Lessons pair generalized logical thinking and the process with illustrative examples to support the steps for solving problems and the thinking behind them.

## Courseware Independent Review and Approval

In addition to being built on a foundation of research-based principles, Courseware is continuously submitted for external review and approval by independent organizations and experts to ensure that it is based on effective pedagogical principles and comprehensively covers state and national standards of
learning. In 2020, Edmentum submitted 2,479 courses for review, and 2,451 were approved on the first review by a total of 49 different state and national agencies and experts. The approval rate for courses in 2014 and 2015 was above 96 percent and has been above 98 percent every year since 2016.

Findings

The findings included in this section of the study demonstrate that student-athletes who enroll in TPH and EdOptions Academy have high academic outcomes that are critical to their success in school and beyond.

SAT Exam Results

SAT results are an important measure of student success for many reasons. The SAT exam is a long-established measure of student readiness for college and is used as an entrance criterion by colleges and universities. The SAT exam is also an established measure of high school academic performance in state accountability systems. TPH student-athletes taking the SAT exam throughout 2017–20 had an average score of 1280, which is 212 points higher than the national average.
ACT Exam Results

The ACT exam has also become a universally accepted measure of college readiness and a college entrance criterion for students, as well as an indicator of high school academic performance in state accountability systems. TPH student-athletes taking the ACT exam throughout 2017–20 had an average score of 25, which is 4 points higher than the national average.

Course Completion Rate

There is a consistent strand of educational research indicating that students who complete rigorous course work in high school are better positioned for initial academic success in college (Barnett, 2018; Castellano et al., 2014; Goins, 2015; Pretlow & Wathington, 2014; Warren & Goins, 2019). TPH student-athletes not only take rigorous high school and advanced courses, but they also complete those courses at an overall average rate of 95.4 percent. Throughout 2017–21, TPH student-athletes enrolled in 9,147 courses and completed 8,723 of them.
Course Grade

Research from the University of California, Berkeley's Center for Studies in Higher Education (CSHE) found that high school grade point average (HSGPA) is consistently the strongest predictor of four-year college outcomes for all academic disciplines (Geiser & Santelices, 2007). Additionally, the higher students’ high school GPA, the higher their first-semester college GPA (Warren & Goins, 2019). With the importance of HSGPA and individual course grades in mind, this study analyzed the individual course grades for all TPH student-athletes from 2017–21 and found that the average grade in core academic courses was 90.5 percent.

The following figure shows the subject-grade distribution for each core subject. The median final grade for all courses in each subject area is greater than 90 percent, and the majority of the distribution is in the 90–100 percent range.

Student Outcomes by Course Subject

To further understand the academic outcomes of TPH student-athletes, data were analyzed at the individual course level in each core subject area by various student outcomes. Averages presented reflect course-level outcomes data for courses completed by TPH student-athletes from 2017–21 combined. Except for time in the system, all course outcomes are calculated based on a scale of 0–100 percent. The following table provides a description of each student outcome analyzed.
### Mathematics Student Outcomes

With average math course grades ranging from 84.4 percent to 92.9 percent, it is evident that TPH student-athletes utilizing EdOptions Academy’s virtual instructional model consistently achieve high academic performance in math across grade levels and course content. Furthermore, this high academic performance is demonstrated in system-graded activities like mastery tests and unit tests, as well as by teacher-graded activities like unit activities and threaded discussions. The following figure shows the math course grade distribution for each math course taken by five or more TPH student-athletes from 2017–21; semesters A and B have been combined for each course, where available. Following the figure is a data table that includes the average score for separate course activities within each math course.

<table>
<thead>
<tr>
<th>Student Course Outcome</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Course Grade</td>
<td>This is the average course grade for all students taking a course (i.e.: Algebra 1 Semester A) from 2017-2021. Each student’s course grade is calculated on a scale of 0-100.</td>
</tr>
<tr>
<td>End of Course Exam</td>
<td>Each semester course includes an end of course exam that measures the learning objectives within that course.</td>
</tr>
<tr>
<td>Post-Unit Test</td>
<td>Each semester course is divided into instructional units, and each unit includes a post unit test that measures the objectives within that unit.</td>
</tr>
<tr>
<td>Mastery Test</td>
<td>Each instructional unit within a course is divided into lessons and each lesson includes a mastery test that measures the specific objective of that lesson.</td>
</tr>
<tr>
<td>Unit/Course Activity</td>
<td>Depending on the course subject, courses contain unit and/or course-level activities that measure students’ ability to solve problems or complete tasks that require higher order thinking.</td>
</tr>
<tr>
<td>Threaded Discussion</td>
<td>Each instructional unit includes a graded discussion topic that allows students to demonstrate critical thinking.</td>
</tr>
<tr>
<td>Time in System</td>
<td>Time in the system is represented in the number of hours a student is logged into the online system. Students also spend time working offline which is not included in Time in System.</td>
</tr>
</tbody>
</table>
*Course data were included in this analysis where there was a minimum of five students taking the course.
English Language Arts Student Outcomes

Students are also achieving academic success in their English language arts (ELA) courses, with average ELA course grades ranging from 86.1 percent to 94.2 percent. This high academic performance is demonstrated in system-graded activities like mastery tests and unit tests, as well as by teacher-graded activities like unit activities and threaded discussions. The following figure shows the ELA course grade distribution for each ELA course taken by five or more TPH student-athletes from 2017–21; semesters A and B have been combined for each course. Following the figure is a data table that includes the average score for separate course activities within each ELA course.
Science Student Outcomes

The average science course grades range from 87.8 percent to 94.3 percent. Similar to math and English results, TPH student-athletes show consistently high academic performance across science grade levels and course content. This high academic performance is demonstrated in system-graded activities like mastery tests and unit tests, as well as by teacher-graded activities like unit activities and threaded discussions. The following figure shows the science course grade distribution for each science course taken by five or more TPH student-athletes from 2017–21; semesters A and B have been combined for each course, where available. Following the figure is a data table that includes the average score for separate course activities within each science course.

*Course data were included in this analysis where there was a minimum of five students taking the course.
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Social Studies Student Outcomes

Students taking social studies courses show consistent high academic course results across grade levels and course content, similar to math, English, and science. Average social studies course grades range from 87.5 percent to 95.7 percent. This high academic performance is demonstrated in system-graded activities like mastery tests and unit tests, as well as by teacher-graded activities like unit activities and threaded discussions. The following figure shows the social studies course grade distribution for each social studies course taken by five or more TPH student-athletes from 2017–21; semesters A and B have been combined for each course, where available. Following the figure is a data table that includes the average score for separate course activities within each social studies course.

Note: Multi-semester courses aggregated into single course.
World Language Student Outcomes

Finally, this study looked at world language course data. Students taking world language courses demonstrate consistently high academic course results across grade levels and course content, similar to the core subjects. Average world language course grades range from 86.5 percent to 94.5 percent. This high academic performance is demonstrated in system-graded activities like mastery tests and unit tests, as well as by teacher-graded activities like unit activities and threaded discussions. The following figure shows the world language course grade distribution for each language course taken by five or more TPH student-athletes from 2017–21; semesters A and B have been combined for each course, where available. Following the figure is a data table that includes the average score for separate course activities within each world language course.

*Course data were included in this analysis where there was a minimum of five students taking the course.
Conclusions

We started this paper by asking the question: Is virtual learning associated with successful outcomes for high-achieving, college-bound students? After examining the data from 3,941 courses taken by TPH student-athletes from 2017–21, the clear answer is: yes. This study demonstrates that, when students have access to virtual teachers and pedagogical practice that builds strong teacher-student relationships and have rigorous, research-based curricula that is optimized for virtual learning and that actively engages students, they can be successful at high academic levels and can outperform the national average on postsecondary measures of success like SAT and ACT exams. The TPH and EdOptions Academy

*Course data were included in this analysis where there was a minimum of five students taking the course.*
partnership provides a learning system where student-athletes benefit from a combination of proven instructional practice, including mastery learning, active and engaged learning, deliberate practice, explicit instruction, scaffolding, and metacognitive strategies implemented in a rich online environment that engages students with their teacher and the content to achieve their goals for success.
References


