

# EQUITY in VIRTUAL LEARNING

Improving Outcomes  
for Diverse Populations

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# Dear Colleagues

All students should have access to engaging and meaningful learning opportunities that accelerate their academic and life trajectories. The pandemic has affected everyone, but that impact has not been felt equally. In education, learners who are experiencing poverty, homelessness, food insecurity, or trauma face the biggest barriers for accessing high-quality learning opportunities.

Despite these challenges, we see reasons for optimism. At Edmentum, we have been proud to work in partnership with resilient educators and school communities across the country to serve students and families. This case study demonstrates how one such Edmentum partner school, Odyssey Online Learning (OOL) in South Carolina, has engaged in thoughtful program design, including investing in building meaningful student relationships. Supported by a team of leaders, mentors, counselors, coaches, and teachers, Odyssey is passionate about creating a sense of belonging and community and a welcoming learning environment.

Wherever learning occurs, Edmentum believes that all students should have access to engaging experiences that accelerate their academic and life trajectory. Through these case studies and beyond, we seek to define what high-quality sustainable virtual learning looks like, providing a framework to guide practices on everything from instructional effectiveness and whole-child support services to course design, curriculum, and assessment. We believe this work has never been more urgent.

— DAVE ADAMS, CHIEF ACADEMIC OFFICER

## Acknowledgements

We are grateful to the committed team of educators who are leading change at Odyssey Online Learning. From the teachers to student engagement specialists, the counselors to school leaders, they have been committed partners in this case study and generously shared their insights. In addition, Edmentum's Data Science and Research and Learning Engineering teams have played critical roles in helping to extract and analyze thousands of academic performance and student demographic data points as part of this process.

# Executive Summary



**The pandemic has laid bare** the extent to which traditional, one-size-fits-all school models are insufficient for meeting the needs of all learners (Bellwether, 2021). Moreover, as school districts grapple with an unprecedented disruption to students' learning, more students and families are seeking high-quality solutions that are flexible and personalized. But to what extent can high-quality virtual learning address and reduce risk factors for students?

In 2019, as part of a strategic turnaround effort, Odyssey Online Learning (OOL), a public virtual charter high school in South Carolina serving students in every region of the state, partnered with Edmentum to design a virtual learning program. This partnership significantly expanded the school's course catalog and wrapped it with high-quality instructional services and student-centered engagement coaches. This case study presents findings from an analysis of course outcomes for 7,342 student course enrollments in 211 courses over two academic years. During this time, **OOL significantly improved graduation rates, decreased drop-out rates, and showed significant growth in other key areas.**



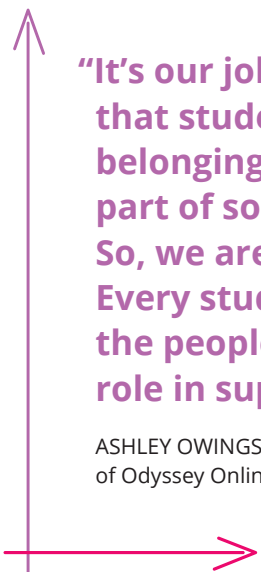
# Introduction

## Serving a wide variety of learners

To increase retention and completion outcomes and graduation rates, Odyssey and Edmentum have partnered to develop an intentionally designed virtual learning model that is supported with courses and instructional services and tailored to each student's unique needs. The school's mission is to provide a high-quality education for a wide variety of students for whom traditional schooling options are insufficient. Virtual instruction, personalized courses, and competency-based learning design are offerings that Odyssey's students may not otherwise have access to.

This is especially true for high school students who are academically “off track” and require a learning acceleration strategy to earn credits and graduate. It also includes students with a range of identified risk factors, such as those experiencing poverty, housing instability, or food insecurity; many are working or family caretakers who seek flexible scheduling to avoid quitting their jobs or dropping out of school.

According to South Carolina's School Report Card Poverty Index, the percentage of OOL's students who are experiencing one or more risk factors, which include transience, living in foster care, homelessness, or qualifying for federal nutritional assistance, has **increased from less than 50% to 59% over two years.**



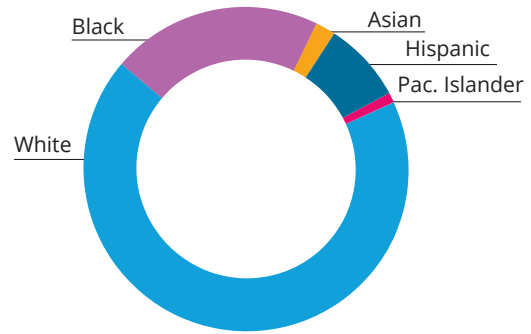
**“It’s our job to make sure that students feel a sense of belonging, to make them feel part of something at Odyssey. So, we are very personalized. Every student will get to know the people here who play a role in supporting them.”**

ASHLEY OWINGS Executive Director  
of Odyssey Online Learning

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## Poverty Index

South Carolina's School Report Card Poverty Index is an indicator that shows the percentage of a school's students who are experiencing risk factors (are transient, in foster care, are experiencing homelessness, are Medicaid-eligible or qualify for federal nutritional assistance). Source: South Carolina School Report Card Data 2021



## Student Demographics

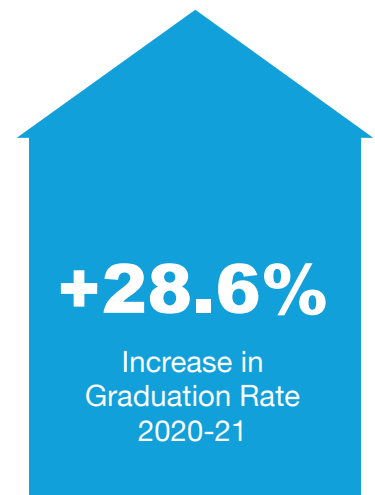
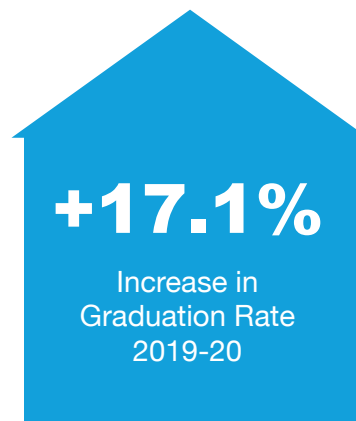
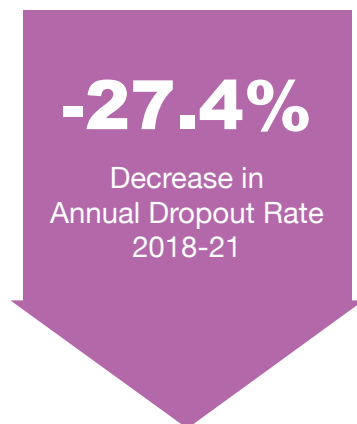
Source: CCD Public school data 2019-2020, 2020-2021 school years

To better serve these students, OOL's new school-wide data intervention system is designed to strategically direct support services. In addition, leadership has invested in a Student Engagement Department, with skilled specialists who include Edmentum's success coaches, who deliver tailored coaching and mentorship. The changes have been effective at building deeper relationships among OOL's learners and the school's network of educators, from school leaders and administrators to student engagement specialists, guidance counselors and teachers.

OOL's strategic school-improvement is underway, but the early results have been promising. Drop-out rates have decreased by 27 percentage points, while graduation rates have more than doubled.

"What we're doing is working," said Owings. "And when you see our students walk across the stage, after all that they have been through, to complete this chapter of their learning journey, those moments speak for themselves."

## 4-Year Graduation Rate Improvement



Source: South Carolina School Report Card Data 2019-2021

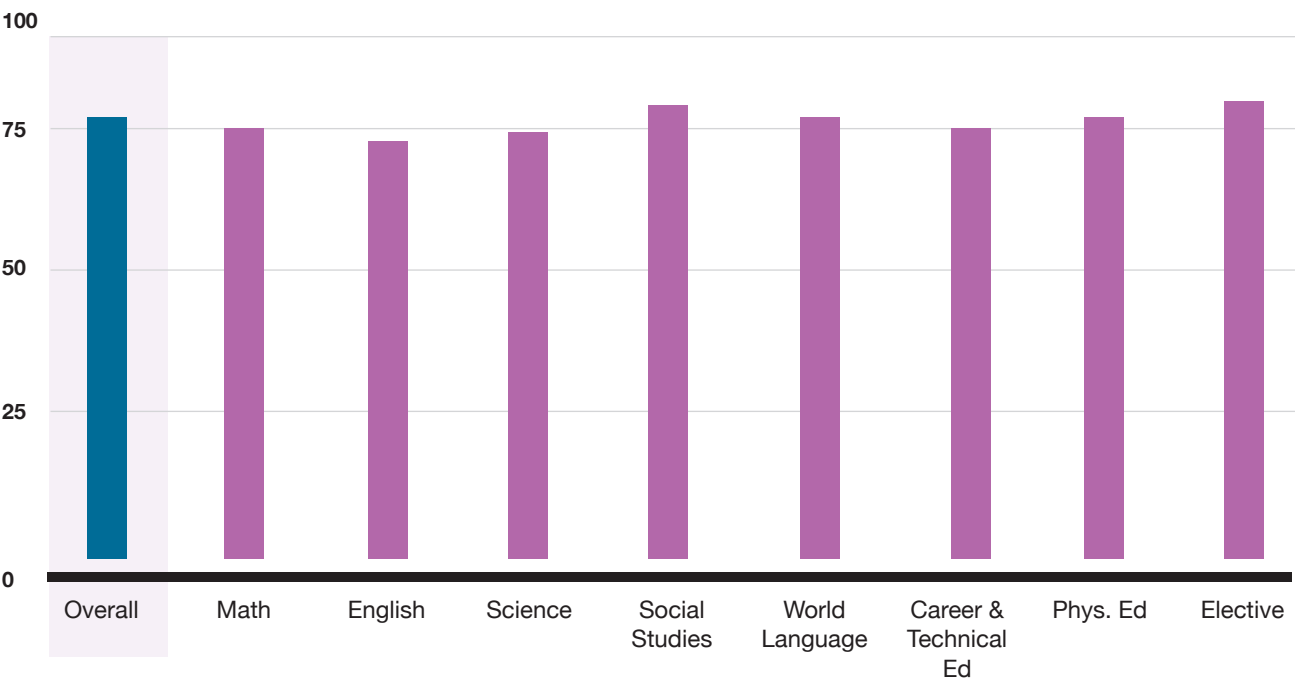
# Course Outcomes Analysis

## MEDIAN COURSE GRADES

Academic outcome data were analyzed across six categories at the individual course level in subject areas. They include formative and summative assessment scores, course grades, and assignment completion. (See Appendices for detailed break-downs of each subject and category descriptions).

Across 85 courses taken by 577 students, a total of 5,771 enrollments are part of this analysis.

The median course grade across all course enrollments was 77.





# Successful Course Completion Analysis

This study is contextualized in a larger research study of academic performance in virtual learning. Using a methodology based on a 10-year longitudinal study of virtual learning outcomes in Michigan (Freidhoff, 2021), the analysis examines course completion rates for students in 672,682 virtual enrollments who completed a course with a passing grade.

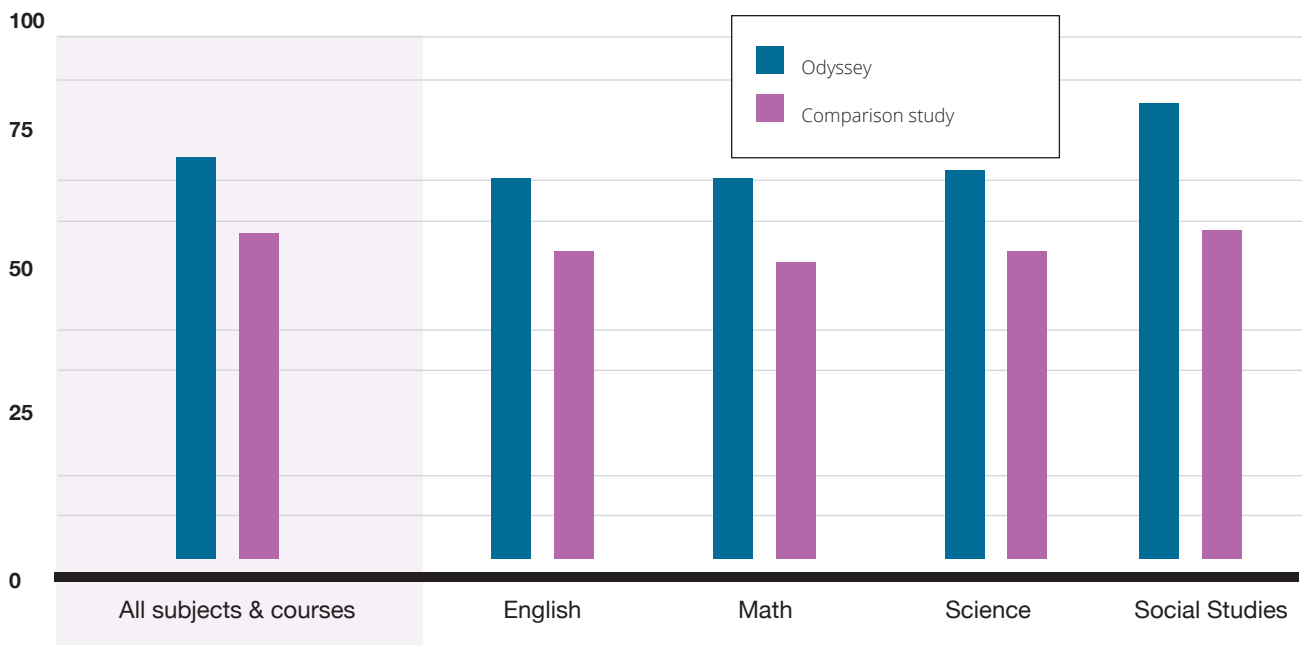
In every subject, a comparison of these “successful course-completion rates” shows that OOL’s students attained higher levels of course completion than the Michigan comparison group.

While Odyssey and Edmentum are pleased with the progress, there is a shared commitment to refining the program to ensure all students succeed.

**“Our students aren’t coming in at the same level. We need to meet them where they are, and that starts with looking at the whole learner.”**

ASHLEY OWINGS Executive Director  
of Odyssey Online Learning

**In every subject, OOL students attained higher levels of course completion than the Michigan comparison group.**



# Nothing More Sacred: Relationships with Students

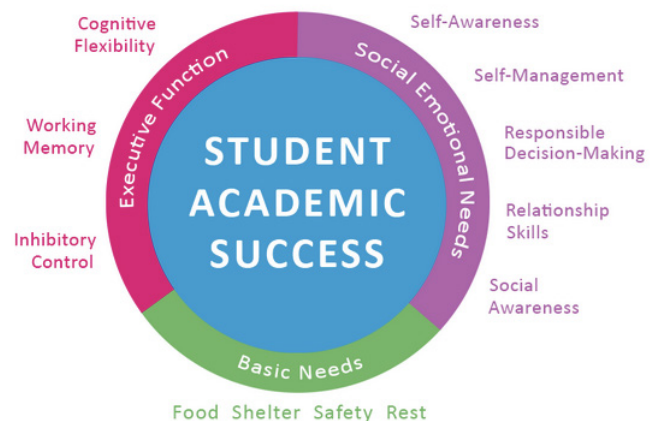
**When Ashley Owings joined the leadership team** at Odyssey Online Learning (OOL) in 2019, it was a time when the school was struggling to serve academically off-track students, who often enrolled after dropping out at a brick-and-mortar district school. OOL's four-year graduation rate that year was 19%, and Owings said that a lot of students were "falling through the cracks." A big reason, she said, was that students didn't feel a sense of belonging at the school. After enrolling, students became less engaged, in part because they didn't feel as though they had a supportive adult to go to with questions or concerns, however small they may seem. *What if I lost my laptop charger? Where do I go to reset my password for Zoom? My internet is out so I can't watch an instructional video.*

## **"IT WAS CRITICAL TO MAKE STUDENTS FEEL PART OF SOMETHING."**

In 2020, Owings was named interim executive director, and a top priority was to create stronger relationships with students from the moment they enroll at OOL. Research shows that students are more receptive to learning when they feel welcomed into and part of a community (Brown, 2010). In partnership with Edmentum, OOL worked to design a whole-learner virtual learning model that would meet the social and emotional needs of its students.

"In virtual settings, it's so easy to feel like you're on an island," said Owings, "which is why it was critical to make students feel part of something."

## Edmentum's Student-Centered Engagement Model



For students to succeed academically, a virtual learning program must recognize that learning is predicated on a variety of social and emotional needs.

OOL leveraged Edmentum's comprehensive course offerings, instructional services provided by certified teachers, and a team of mentors who worked to develop deep and lasting relationships with students. Edmentum's virtual school model provides OOL students with access to honors programs, competency-based digital courseware, and an intentional focus on tending to students' social and emotional development.

## **BELIEVING ALL STUDENTS CAN BE SUCCESSFUL**

OOL started by implementing a schoolwide data-driven intervention system to track student engagement and performance across several indicators. Students with the most risk factors received extra support and resources, working multiple times a week with their assigned student engagement specialists provided by Edmentum. They work together to address students' non-academic needs as well as academics, or sometimes just to check in about a personal issue that might be distracting the student from their work.

But the support isn't designed only for students who are struggling. OOL has embraced an asset-based approach, finding opportunities to recognize students for their successes and growth.

"We work really hard on building positive relationships where students trust us," said Owings. "It's not a one size fits all model."

## **"When I think about equity in education, I think a lot about students like Shayna."**

When Shayna logs into school, it doesn't matter where she is or what time it is. It doesn't matter if she's staying with her grandmother or at a friend's place that night. She has faced enormous challenges, including periods of homelessness and the tragic loss of a family member. She needs a job to support herself and doesn't want to quit, but the hours conflict with a traditional school schedule. Still, she is determined to make the most of her situation.

"When I think about equity in education, I think a lot about students like [Shayna]," said Christa Hays, one of Odyssey's student engagement specialists who provides individualized weekly coaching to an assigned group of students. This case study is using a pseudonym for this student in order to describe experiences shared in interviews with Hays and other OOL educators. "She wants to make something of herself, and she knows that this is an opportunity to rise above. This is an option that allows her to do that."

As a Student Engagement Specialist, Hays said that building relationships with students when they enroll is among the most important parts of Odyssey's personalized approach.

For a variety of reasons, there are millions of students like Shayna who require flexibility to learn and complete their school work at a time and pace that isn't in lock-step with the traditional bell schedule of a brick-and-mortar school. Some are family caretakers with responsibilities at home, while others are working jobs to help their families make ends meet.

"My job is to build lasting relationships with students," says Hays. Based on a data-driven intervention system, Hays checks in with 40+ students at least once a week. She is meeting with higher-need students multiple times a week. Zoom Office Hours are weekly events where students have opportunities to meet virtually to ask the teacher questions and build community among each other. OOL staff and Edmentum teachers also make regular use of texting and phone calls to check in.

More than anything, she said, she is there to listen and offer support. "I ask them about their classes, issues they're having at home, struggles they're having in the classrooms, and how I can help them solve problems."

# Methodology

**211** courses

**638** students

**7,342** course enrollments

**220,330** assignments

**148,418** assessments

To better understand OOL's student academic outcomes and student characteristics, this case study includes an analysis of data from a range of external and internal sources:

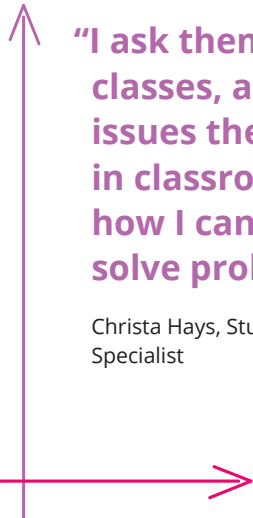
- **Course-completion** data were extracted from Edmentum's internal databases for enrolled OOL students for the 2019–20 and 2020–21 academic years; course grade and activity data were extracted for all OOL students from 2019–2021.
- **Graduation rates** drop-out rates, school poverty index, schoolwide student demographic information, and other academic performance reports are based on publicly available data.
- **The analysis** of successful course-completion rates compares OOL's course-completion rates with those of a 10-year longitudinal study of virtual learning academic outcomes published in a 2019-2020 report, *Michigan's K-12 Virtual Learning Effectiveness Report 2019-20*.

These data encompass courses taken by OOL students, including core, elective, and career and technical education (CTE) courses. Student course enrollments were counted for:

**Courses with** at least 10 students

**Students with** at least 50% completion of course activities. This requirement was added in order to analyze the academic outcomes of students who completed the course with moderate engagement levels. This represents a subset of the larger course-enrollment group used to analyze course completion rates.

- **Successful completion** rates are measured by students who completed the course and earned a final course grade of 60 or above, OOL's minimum cutoff grade required for course credit eligibility. Students who do not successfully complete a course either earn a failing course grade below 60% or drop out of the course.



**"I ask them about their classes, about what issues they're having in classrooms, and how I can help them solve problems."**

Christa Hays, Student Engagement Specialist



## Odyssey Online Learning

**Learners:** 393

**Grades:** 9-12

Odyssey Online Learning (OOL) is an AdvancED accredited, public virtual charter school in South Carolina that provides individualized learning through a non-traditional platform. Students at Odyssey hail from every region of the state and complete their educational studies solely online.



# Discussion

This study presents findings from rigorous analyses of hundreds of thousands of Edmentum's internal academic and course outcomes for 7,342 student course enrollments in 211 courses over two academic years in partnership with Odyssey Online Learning. During this time, OOL significantly improved graduation rates, decreased drop-out rates, and showed significant growth in other key areas. The data research, combined with interviews with key Edmentum and OOL stakeholders, suggest that evidence-based instructional methods such as the cultivation of meaningful adult-student relationships, delivered by highly-qualified, state-certified, instructors, played a critical role in academic growth and achievement.

Further study is needed to better understand both the causal and correlative connections between student learning outcomes and high-quality virtual learning programs. A cross-functional team at Edmentum representing data science, research, learning design, and academic programs, has established a research agenda to continue exploring the impact of virtual learning across a variety of student groups and academic settings. Upcoming research will examine the role of virtual learning and remote and rural communities, elementary students, high performing students, and the role of teacher training and professional development in virtual education.

## 5 Key Components of a Sustainable Virtual Program

Part of Edmentum's ongoing work is to define what high-quality sustainable virtual instruction looks like. After decades of work as an innovator in online teaching and learning, Edmentum has identified several key components for building a sustainable, high-quality virtual program.

<b>High Quality Instructional Practice</b>	<ul style="list-style-type: none"><li>• Effective instructional practices, tailored for an online environment</li><li>• Experienced virtual instructors, highly-qualified and state certified</li><li>• Active learning strategies</li></ul>
<b>Online Curriculum and Assessment</b>	<ul style="list-style-type: none"><li>• Instructional materials that meet students where they are</li><li>• Aligned with college and career ready standards</li><li>• Multimodal and student-centered</li></ul>
<b>Virtual Platform</b>	<ul style="list-style-type: none"><li>• Organized from a student's point of view</li><li>• Simple, efficient and ubiquitous</li><li>• Data-driven intervention features</li></ul>
<b>Whole-Learner Services</b>	<ul style="list-style-type: none"><li>• Multi-role support teams: coaches, advisors, counselors, and mentors</li><li>• Specialized services for students with disabilities, ELLs</li></ul>
<b>Continuous Improvement</b>	<ul style="list-style-type: none"><li>• A deliberate focus on learning growth and continuity</li><li>• An emphasis on growth-oriented goals and accountability metrics</li><li>• Promoting students' beliefs that they have the ability to meet goals by changing how they approach new learning experiences.</li></ul>

# The Science Behind Virtual Teaching Effectiveness

Edmentum's virtual instructional training and development for teachers is built on a foundation of research-based pedagogical principles.

## **Establishing Student-Teacher Relationships**

When students feel welcomed and comfortable, they develop a sense of community, and they are more receptive to learning (Brown, 2010). When students join an Edmentum online learning community, they immediately receive tailored video introductions from their teacher or coaches. They'll also use the time to get acquainted with school norms and culture. 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). 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).

## **Virtual Instructional Tools and Techniques**

Edmentum instructors are trained to effectively leverage and utilize a variety of virtual instructional tools and techniques, including Edmentum's course learning platform, online video technology to record instructional sessions or microlectures. Instructor-created video content, for example, is a simple strategy for increasing students' sense of connection with their teachers. The utilization of personalized video content has been shown to increase the level of engagement and satisfaction experienced by students (Underdown & Martin, 2016).

## **Teacher Qualification, Experience, Training, and Learning Opportunities**

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% of teachers have a master's degree or higher, and 93% have certifications in multiple states. In addition, all newly-hired teachers will receive a rigorous introductory training program as well as access to continuous learning opportunities.

## **Teacher Efficacy 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.

## **Success Coaches**

Virtual learning students, like all students, bring a variety of complex cultural, socio-economic, and social-emotional factors that impact their ability and readiness to learn. Each Odyssey Online Learning student is assigned a success coach to help meet their unique non-academic needs. Success coaches work with Odyssey staff, EdOptions virtual instructors, family/guardians, and community organizations to ensure each student has the resources and support they need to be successful.

# Edmentum's Research-Based Online Course Design

## Principles

### **Mastery Learning:**

Focus on efficient learning. Students show mastery of key content, invest time on not-yet-mastered content, and proceed through learning new content at their own pace.

When it comes to introducing students to new concepts, content, or knowledge, there is a delicate sweet spot in their brains. When it's activated, the learner sees a path to mastery of new concepts. This critical spark enables students to work efficiently at their own pace with a focus on what they need to learn. (Le et al., 2014). It also subtly promotes a growth mindset orientation in students, which research shows is a strong predictor of academic success.

Edmentum Courses apply principles of mastery learning by establishing powerful learning objectives that effectively define what students will know and be able to do at the end of a course. Each learning objective includes a mix of assessment and learning experiences. Through formative, low-stakes assessments, as well as unit pretests, Edmentum Courses provides information that allows teachers and learners to make self-directed decisions about their own learning. This ensures that the pace of instruction matches what each student is ready to learn (Haynes et al., 2016; Le et al., 2014)

### **Active Learning:**

Involve learners in responding to and manipulating information while they learn—ensuring their involvement in building understanding and minimizing passive reception of information.

Decades of research support active learning's basic tenet, which is that students learn more when they are actively engaged in the content that they are expected to master (Prince, 2003). This student-centered instructional method puts the learner in charge, contrasting a traditional lecture format, in which a teacher delivers information to a classroom of students who passively receive it (Bonwell & Eison, 1991). Hattie's research (2009) shows that, as students become active in the process of their own education, learning outcomes improve. Edmentum's Courses includes a range of effective teaching practices and active learning strategies.

### **Deliberate Practice:**

Offer intentional, structured, and sustained practice that builds thoughtfully in complexity to support increasing levels of understanding.

Research shows that deliberate practice is a powerful influence on student achievement because initial learning can be consolidated from surface knowledge and committed to long-term memory (Hattie, 2009; Hattie & Yates, 2013). It refers to intentional, highly structured, and sustained student effort that impacts knowledge and skill acquisition and retention. The learning curve relies on the links among practice, reinforcement, immediate feedback, and performance (Campitelli & Gobet, 2011; 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 applications 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.

## Principles

### Explicit Instruction:

Support successful learning by providing clear skill statements, modeling of learning outcomes, and reducing cognitive load.

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 with a powerful learning objective that is clearly and transparently communicated. 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).

### Scaffolding:

Buoy learning by providing specific supports when learners need them and systematically removing them—leading to independence as learners approach mastery.

Scaffolding is a process of instructional supports to help students access, learn, and master content, as well as apply new skills and knowledge. (Dickson et al., 1993; Rosenshine & Meister, 1992). Scaffolding is particularly important to learners when they are encountering new material.

Vygotsky (1978) described a zone of proximal development, where the level of difficulty is balanced with a learner’s prerequisite knowledge and proficiency. When learners are outside of this optimal learning zone, the time they are investing is not productive. Scaffolds help learners achieve an appropriate level of productive struggle.

Edmentum Courses include interactive tools that allow learners to self-direct when they need to utilize scaffolds.

### Metacognition:

Engage students in reflecting on how they best learn and evaluating their thought processes to help themselves along their learning path.

Metacognition 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 strategies in their work (McGuire, 2015). Thoughtful self-monitoring practices are associated with better learning (National Research Council, 2005, 2013). Instructional strategies that utilize metacognition have been found to be strongly associated with positive educational outcomes (Hattie, 2009, 2012).

Edmentum Courses are 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 appear in videos, as instruction, and as interactions where learners see the thinking of other students and decide whether they agree or disagree with their thought processes. Lessons pair generalized logical thinking and the process with illustrative examples to support the steps for solving problems and the thinking behind them.



# Edmentum Courses Independent Review and Approval

Edmentum's standards-aligned digital courses are 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 digital curricula across 2,479 courses for review by curriculum experts and educators in 49 states.



# 99%

first-round approval rate



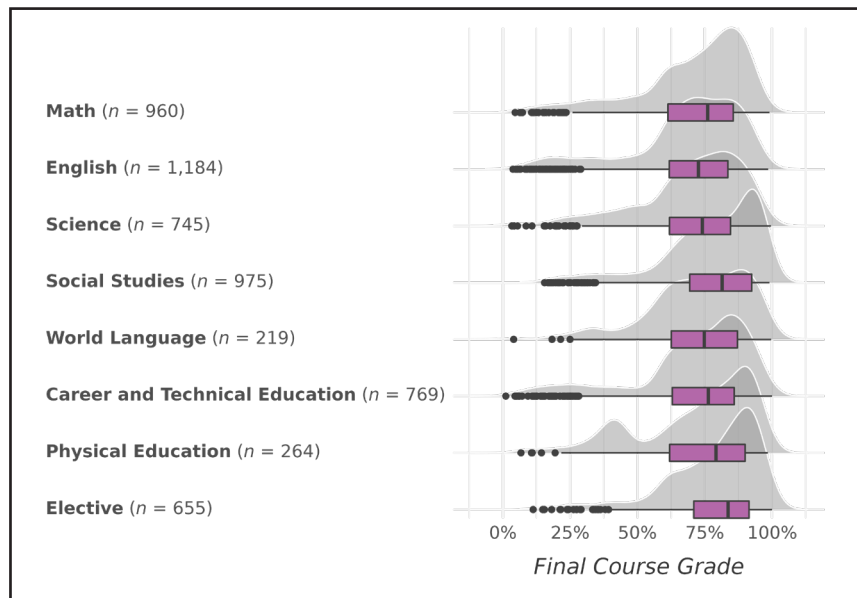
# Appendices

Student Course Outcome	Description
<b>Final Course Grade</b>	This is the average course grade for all students taking a course (i.e. Algebra 1 Semester A) during the 2019–20 and 2020–21 school years. Each student's course grade is calculated on a scale of 0–100.
<b>End of Course Exam</b>	Each semester course includes an end of course exam that measures the learning objectives within that course.
<b>Post-Unit Test</b>	Each semester course is divided into instructional units, and each unit includes a Unit post-test that measures the objectives within that unit.
<b>Mastery Test</b>	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.
<b>Unit/Course Activity</b>	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.
<b>Threaded Discussion</b>	Each instructional unit includes a graded discussion topic that allows students to demonstrate critical thinking.

## STUDENT OUTCOMES BY SUBJECT: ALL SUBJECTS (MEDIAN VALUES)

Across 85 courses taken by 577 students, a total of 5,771 enrollments that are part of this analysis. The median course grade across all course enrollments was 77.

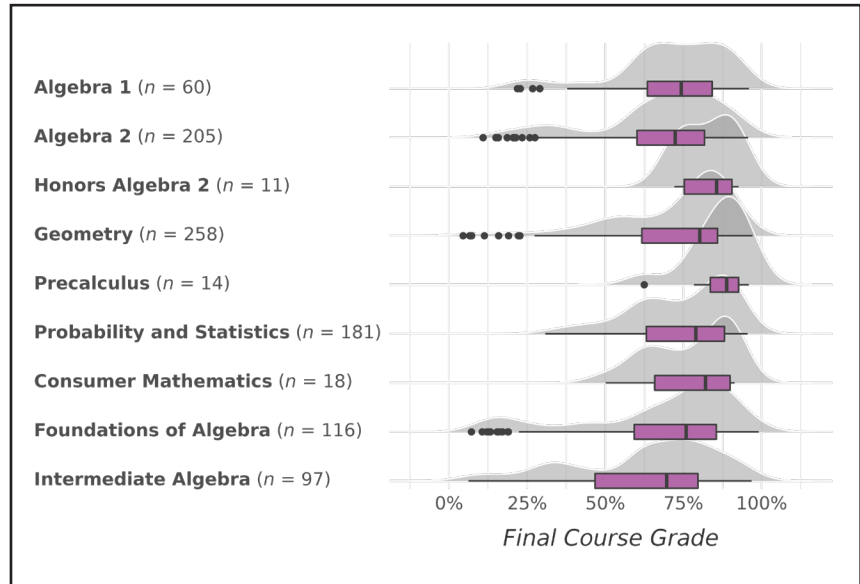
A distribution of the numerical data shows the course grade distribution for each core subject in courses taken by 10 or more OOL students from 2019–21.



Subject	Final course grade	End of Course Exam	Post-Unit Test	Mastery Test	Unit/Course Activity	Threaded Discussion	N
Math	76.1	77.3	70.8	80	100	100	960
English	72.7	72.9	75	80	90	93	1184
Science	74.1	85.1	75	80	100	100	745
Social Studies	81.5	90	85	100	98	95	975
World Language	74.8	86.2	87.5	100	88	100	219
Career and Technical Education	76.3	74	70	80	100	100	769
Physical Education	79.2	83.3	80	100	98	100	264
Elective	83.7	76.7	77.8	100	100	100	655
<b>Overall</b>	<b>77</b>	<b>79.4</b>	<b>75</b>	<b>80</b>	<b>100</b>	<b>100</b>	<b>5771</b>

## STUDENT OUTCOME BY SUBJECT: MATHEMATICS (MEDIAN VALUES)

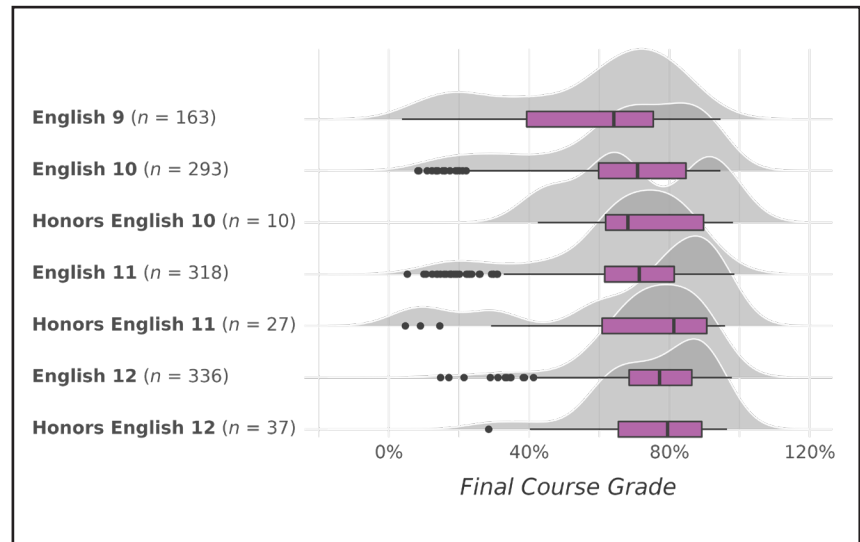
The median mathematics course grades range from 69.7% (Intermediate algebra) to 88.8% (Precalculus). The following charts include a distribution graphic showing the math course grade distribution for each math course taken by five or more OOL students from 2019–21.



Course	Final course grade	Grade	End of Course Exam	Post-Unit Test	Mastery Test	Unit/Course Activity	Threaded Discussion	N
Algebra 1	74.3	80	65	80	98	100	60	22
Algebra 2	72.4	74	70	80	90	100	205	38
Honors Algebra 2	85.6	81.2	83.3	80	100	100	11	100
Geometry	80.2	100	75	80	67	100	258	105
Precalculus	88.8	#N/A	75	80	#N/A	100	14	11
Probability and Statistics	79	72.7	70.8	80	100	100	181	119
Consumer Mathematics	82.1	82.3	85	100	#N/A	#N/A	18	139
Foundations of Algebra	75.8	100	60	80	100	100	116	14
Intermediate Algebra	69.7	68.3	62.8	80	78	100	97	181
Overall	76.1	77.3	70.8	80	100	100	960	18
Foundations of Algebra	A	69.1	#N/A	66.7	90	79	100	44
Foundations of Algebra	B	80	100	51.7	80	100	100	72
Intermediate Algebra	A	60.3	59.8	60	80	65	100	49
Intermediate Algebra	B	76.6	76.8	64	80	100	100	48
<b>Overall</b>		<b>76.1</b>	<b>77.3</b>	<b>70.8</b>	<b>80</b>	<b>100</b>	<b>100</b>	<b>960</b>

## STUDENT OUTCOME BY SUBJECT: ENGLISH (MEDIAN VALUES)

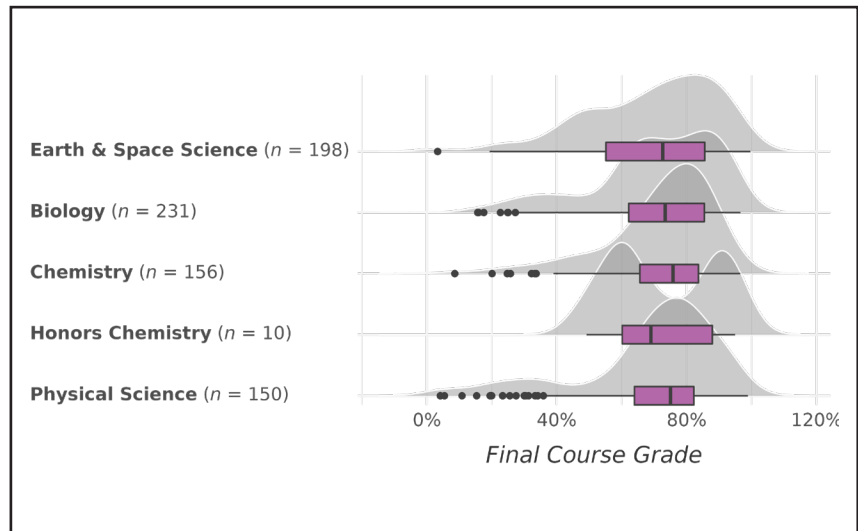
The median English course grades range from 64.1% (English 9) to 79.5% (Honors English 12). The following charts include a distribution graphic showing the English course grade distribution for each English course taken by five or more OOL students from 2019–21.



Course	Final course grade	Grade	End of Course Exam	Post-Unit Test	Mastery Test	Unit/Course Activity	Threaded Discussion	N
English 9	64.1	64	65	80	70	78	163	22
English 10	70.9	71	70	80	100	93	293	38
Honors English 10	68.2	65.8	85	100	90	100	10	100
English 11	71.4	70.6	75	80	75	90	318	105
Honors English 11	81.3	70.8	75	100	100	96.5	27	11
English 12	77.2	78.1	80	100	93	100	336	119
Honors English 12	79.5	79.7	81.2	100	100	100	37	139
<b>Overall</b>	<b>72.7</b>	<b>72.9</b>	<b>75</b>	<b>80</b>	<b>90</b>	<b>93</b>	<b>1184</b>	<b>14</b>

## STUDENT OUTCOME BY SUBJECT: SCIENCE (MEDIAN VALUES)

The median science course grades range from 69% (Honors chemistry) to 75.8% (chemistry). The following figures show the science course grade distribution for each science course taken by five or more OOL students from 2019-21.

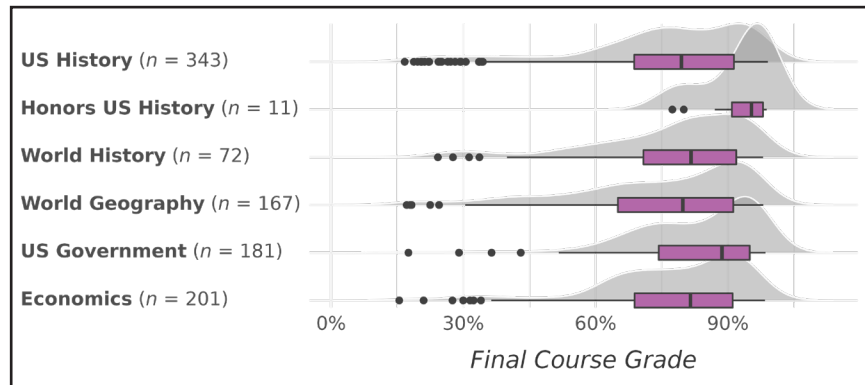


Course	Final course grade	Grade	End of Course Exam	Post-Unit Test	Mastery Test	Unit/Course Activity	Threaded Discussion	N
Earth & Space Science	72.6	80.6	71.4	80	93	100	198	22
Biology	73.4	83	76.2	80	100	100	231	38
Chemistry	75.8	87.8	78.3	80	100	95	156	100
Honors Chemistry	69	100	74.5	80	100	95	10	105
Physical Science	75	75	71.4	80	95	100	150	11
<b>Overall</b>	<b>74.1</b>	<b>85.1</b>	<b>75</b>	<b>80</b>	<b>100</b>	<b>100</b>	<b>745</b>	<b>119</b>



## STUDENT OUTCOME BY SUBJECT: SOCIAL STUDIES (MEDIAN VALUES)

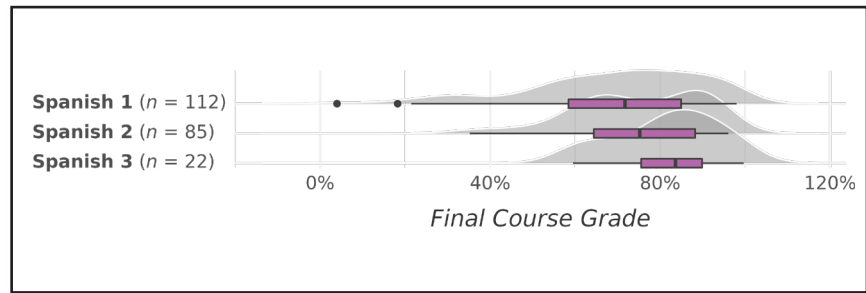
The median social studies course grades range from 79.4% (US History) to 95.3% (Honors US History). The following figures show the social studies course grade distribution for each social studies course taken by five or more OOL students from 2019-21.



Course	Final course grade	Grade	End of Course Exam	Post-Unit Test	Mastery Test	Unit/Course Activity	Threaded Discussion	N
US History	79.4	78	85.7	100	94	92	343	22
Honors US History	95.3	100	93.8	100	100	100	11	38
World History	81.6	84.8	81	100	100	100	72	100
World Geography	79.8	89.1	82.8	100	100	100	167	105
US Government	88.6	93.8	90	100	94	95	181	11
Economics	81.5	96.7	81.2	100	94	94	201	119
<b>Overall</b>	<b>81.5</b>	<b>90</b>	<b>85</b>	<b>100</b>	<b>98</b>	<b>95</b>	<b>975</b>	<b>139</b>

## STUDENT OUTCOME BY SUBJECT: WORLD LANGUAGE (MEDIAN VALUES)

The median World language course grades range from 71.8% (Spanish 1) to 83.6% (Spanish 3). The following figures show the world language course grade distribution for each course taken by five or more OOL students from 2019-21.



Course	Final course grade	Grade	End of Course Exam	Post-Unit Test	Mastery Test	Unit/Course Activity	Threaded Discussion	N
Spanish 1	71.8	85	87.5	100	73	100	112	22
Spanish 2	75.2	87.5	93.8	100	88	100	85	38
Spanish 3	83.6	85	87.5	100	95	100	22	100
<b>Overall</b>	<b>74.8</b>	<b>86.2</b>	<b>87.5</b>	<b>100</b>	<b>88</b>	<b>100</b>	<b>219</b>	<b>105</b>

# References

- Archer, A. L., & Hughes, C. A. (2011). *Explicit instruction: effective and efficient teaching*. Guilford Press.
- Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the classroom* (ASHE-ERIC Higher Education Report No. 1). The George Washington University. <https://files.eric.ed.gov/fulltext/ED336049.pdf>
- Campitelli, G., & Gobet, F. (2011). Deliberate practice: Necessary but not sufficient. *Current Directions in Psychological Science*, 20(5), 280–285. <https://doi.org/10.1177/0963721411421922>
- Dickson, S. V., Chard, D. J., & Simmons, D. C. (1993). An integrated reading/writing curriculum: A focus on scaffolding. *LD Forum*, 18(4), 12–16.
- Freidhoff, J. R. (2021). *Michigan's k-12 virtual learning effectiveness report 2019-20*. Michigan Virtual University. <https://michiganvirtual.org/research/publications/michigans-k-12-virtual-learning-effectiveness-report-2019-20/>
- Geiser, S. & Santelices, M. V. (2007). Validity of high-school grades in predicting student success beyond the freshman year: High-school record vs. standardized tests as indicators of four-year college outcomes (CSHE Research and Occasional Paper Series). UC Berkeley. [https://cshe.berkeley.edu/sites/default/files/publications/rops.geiser.\\_sat\\_6.13.07.pdf](https://cshe.berkeley.edu/sites/default/files/publications/rops.geiser._sat_6.13.07.pdf)
- Haynes, E., Zeiser, K., Surr, W., Hauser, A., Clymer, L., Walston, J., Bitter, C., & Yang, R. (2016). Looking under the hood of competency-based education: The relationship between competency-based education practices and students' learning skills, behaviors, and dispositions. American Institutes for Research. <https://www.air.org/resource/looking-under-hood-competency-based-education-relationship-betweencompetency-based>
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. Routledge.
- Hattie, J., & Yates, G. (2013, August 6). *Understanding learning: Lessons for learning, teaching and research* [Paper presentation]. *How the brain learns: What lessons are there for teaching?* Melbourne, Australia. [https://research.acer.edu.au/research\\_conference/RC2013/6august/10/](https://research.acer.edu.au/research_conference/RC2013/6august/10/)
- "High School GPAs and ACT Scores as Predictors of College Completion: Examining Assumptions About Consistency Across High Schools," Allensworth and Clark, Educational Researcher, Jan. 27, 2020. DOI: 10.3102/0013189X20902110.
- Korman, H., O'Keefe, B., & Repka, M. (2021) *Missing in the margins 2021: Revisiting the COVID-19 attendance crisis*. Bellwether Education Partners. <https://bellwethereducation.org/publication/missing-margins-estimating-scale-covid-19-attendance-crisis#Why%20aren't%20students%20attending%20school?>
- Le, C., Wolfe, R. E., & Steinberg, A. (2014, September). The past and the promise: Today's competency education movement. *Jobs for the Future*. <https://jfforg-prod-new.s3.amazonaws.com/media/documents/The-Past-The-Promise-091514.pdf>
- McGuire, S. Y., & McGuire, S. (2015). *Teach students how to learn: Strategies you can incorporate into any course to improve student metacognition, study skills, and motivation*. Sterling, VA: Stylus.
- National Research Council. (2005). *How students learn: History, mathematics, and science in the classroom*. The National Academies Press. <https://doi.org/10.17226/10126>
- National Research Council. (2013). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. The National Academies Press. <https://doi.org/10.17226/10126>
- Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*. [https://www.engr.ncsu.edu/wp-content/uploads/drive/1smSpn4AiHSh8z7a0MHDBwhb\\_JhcoLQmI/2004-Prince\\_AL.pdf](https://www.engr.ncsu.edu/wp-content/uploads/drive/1smSpn4AiHSh8z7a0MHDBwhb_JhcoLQmI/2004-Prince_AL.pdf)
- Rosenshine, B. and Meister, C. (1992) The use of scaffolds for teaching higher-level cognitive strategies. *Educational Leadership*, 49(7), 26–33. [https://www.ascd.org/ASCD/pdf/journals/ed\\_lead/el\\_199204\\_rosenshine.pdf](https://www.ascd.org/ASCD/pdf/journals/ed_lead/el_199204_rosenshine.pdf)
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press. <https://doi.org/10.2307/j.ctvjf9vz4>