VitalSource®

CASE STUDY

Predicting Student Outcomes With Engagement Data

A University of Phoenix study determines that insights from eBook analytics can help drive student intervention

Is Digital Worth It?

Today's students are demanding digital materials, but not all of these materials are created equally. At University of Phoenix, technical support calls and course surveys told a very clear story: PDFs weren't cutting it. The university looked at technological enhancements to improve the learning experience, striving to make it as seamless as possible so nothing would get in the way of learning.

After researching solutions, VitalSource was chosen as their new provider for digital course materials, with 90% of courses migrating to the new system over 18 months. "We wanted to make the student experience as frictionless as possible, and VitalSource was part of our strategy to help do that," says Dr. Danielle Gordon, Director, Strategic Initiatives and Implementation. "We're really focused on creating a streamlined experience that helps simplify complex material. The technology should just be there to facilitate what they're trying to do."

Following the shift, the calls concerning textbook issues decreased while course survey comments became more positive. One student commented, "The highlight and notes features help me to organize the reading into smaller chunks of important information." Another student appreciated the search function within the platform, which proves invaluable while studying. They commented, "I was easily able to use the search capability to narrow areas of study for each topic."

Striving for relentless and continuous improvement, the university wanted to be sure that the technology they implemented was actually doing what they thought it was doing. Were students actually performing better as a result

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of this change? They needed to determine whether or not the VitalSource platform was improving course outcomes for their students.

University of Phoenix set out to examine how students performed in courses using the PDF format compared to those using VitalSource eTextbooks. They also sought to uncover how student engagement data might be used to drive intervention strategies in the early weeks of an accelerated college course.

Selecting the Study Sample

In the spring of 2017, University of Phoenix partnered with VitalSource to research how engagement with digital course materials impacts student success. For the purpose of this research, it was determined that the study would include all students from a course (or multiple courses) with high enrollment, no other technology-enhanced learning tools, and no other curriculum changes being made to the course when the VitalSource eReader was added.

Of the courses considered, Accounting 290 and 291 were the only two that fit all three criteria. With over 53,000 students enrolled in these courses over a three-year period, it was an ideal option for analysis. The courses shared the same textbook both pre- and post-VitalSource, which served as the primary outside resource, and students were expected to transition from Accounting 290 to 291.

The university provided VitalSource with the rosters for each course section along with the outcome each student achieved. With that information, VitalSource was able to pull summary usage statistics for each student, creating a single view that included both engagement and outcome data. This view was then exported and analyzed to look for trends and correlations between student engagement and outcomes. In terms of engagement with the material, analysis focused on time spent in the material (minutes per session as well as pages per session), frequency (number of sessions per week), and how meaningful the study time was (annotations per session).

Analyzing Student Engagement and Outcomes

Using the common student identifier that exists in both the university's student information system and the VitalSource platform, a unified data set was created detailing both the student's engagement with required course materials and their course outcome. Additional research was conducted across a variety of engagement measures available within the platform.
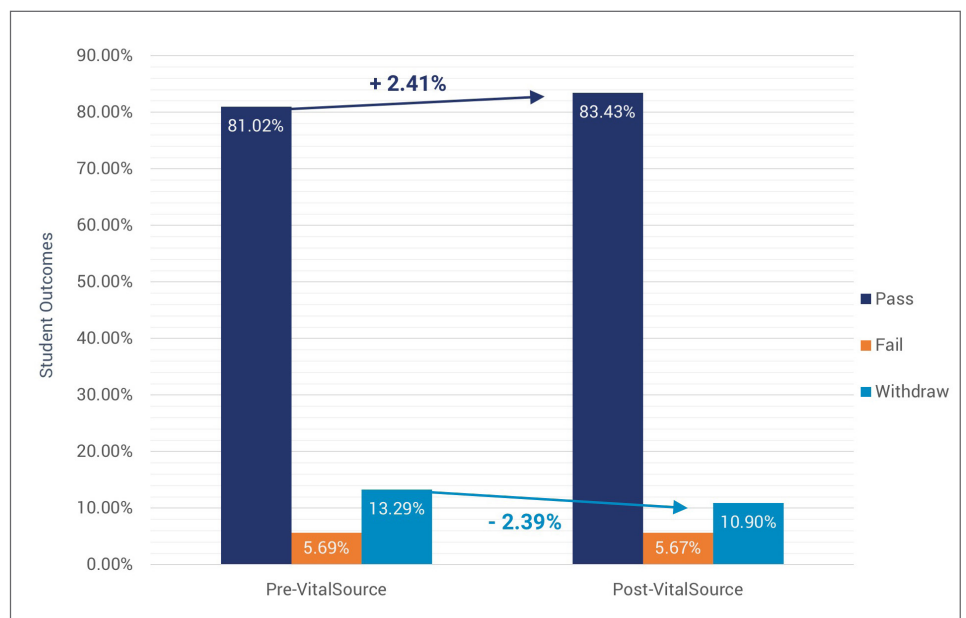
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While reviewing the data, two key points stood out, confirming that the VitalSource content had indeed made an impact and exhibiting a clear relationship between student engagement and outcomes. The data showed that students in the post-VitalSource group performed better than those in the pre-VitalSource group, as evidenced by fewer withdrawals and higher pass rates. In fact, the study suggested that over 700 students who passed the class in the post-VitalSource group statistically wouldn't have passed in the pre-VitalSource era. Additionally, students who engaged with the VitalSource content by week two of the course passed at a higher rate than those who waited until they were further along in the course before engaging with the text.

STUDY SESSIONS PER WEEK
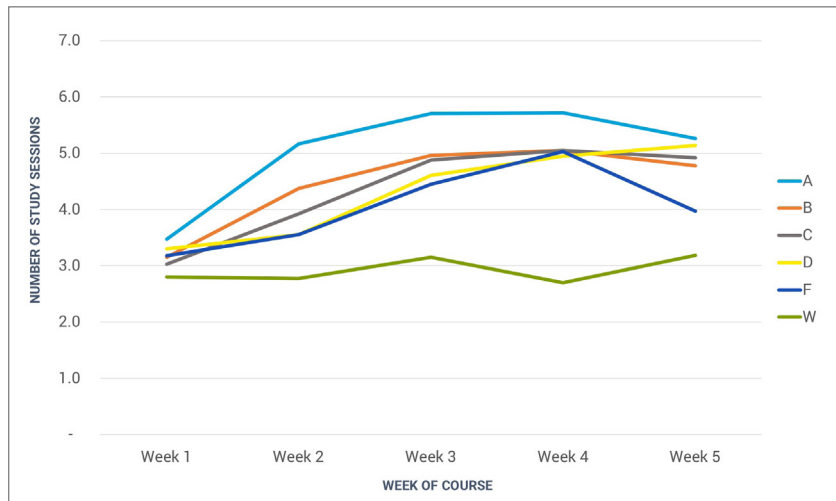
PAGES PER SESSION
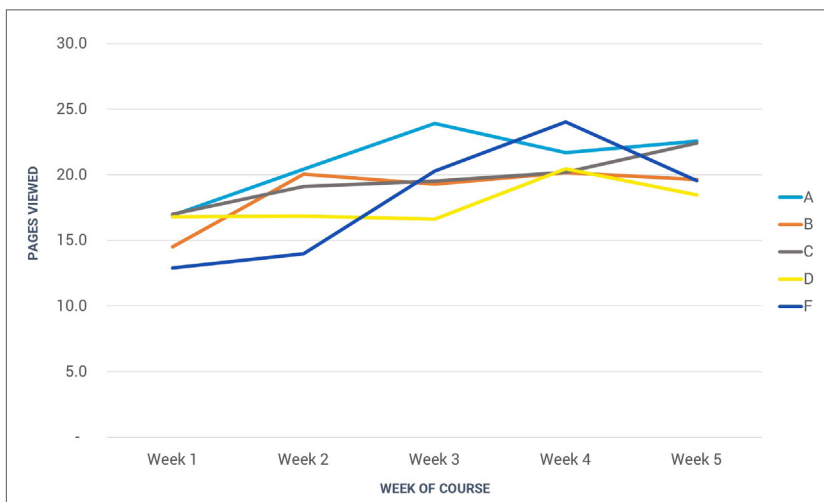
Interestingly, the data was able to predict a student's outcome by the second week of a five-week course based on their engagement with the materials. By that point in the course, there is a clear separation of each grade level. Not only does this show how important early engagement with course materials is, it gives enough time to power an intervention for those who are struggling or at risk of falling behind.

Additionally, there are clear behavioral patterns in terms of engagement between the different grade levels. Note that by the fourth week, A students don't need to cram, as evidenced by the drop in pages per session. On the other hand, the spike in engagement from D and F students around week three tells us that they realize they are behind and begin cramming. And not surprisingly, the data also showed that A students highlight more than any other group, further proving the importance of meaningful engagement with the material.
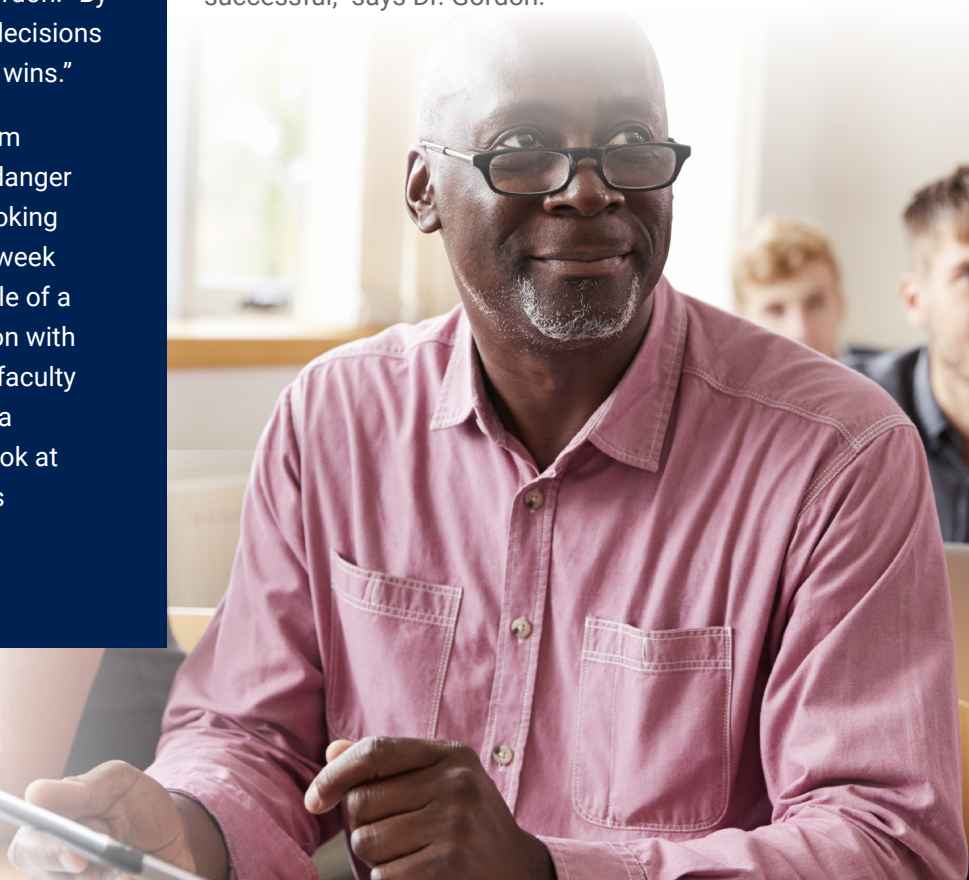
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IMPACT ON FUTURE COURSES

Findings from this study will help the university inform future course design, aid in student success strategies, and enable future research around student intervention. By showing the clear correlation between engagement with the digital course materials and learning outcomes, educators can better focus assignments and classroom activities, helping to improve the development of knowledge for their students. Additionally, these analytics will help educators gain a deeper understanding of the needs of their students, opening up the potential for interventions as needed to ensure that students are making the most of their time in the classroom. "The more we can utilize technologies like this to help our learners be successful, the better," says Dr. Gordon. "By using these findings to make more informed decisions for the university and our students, everybody wins."

There is an opportunity to use the findings from week two—essentially, which students are in danger of failing—to drive student interventions. In looking at which students are predicted to do well by week two, educators could potentially create a profile of a successful student, then share that information with faculty and students to improve outcomes. If faculty shares annotations with students throughout a course, there may be also an opportunity to look at how their engagement with the text influences student engagement.

Helping Students Succeed

Educators have known for years that engaging with required course materials is a key component of student success. The implementation of VitalSource digital course materials allowed the university to confirm this while gaining additional insights into how, when, and how often successful or unsuccessful students engage with content.

Both the analytical tools for educators and study tools for students within the VitalSource platform have proven useful for the university, and they plan to investigate other offerings to see how they can further help their students. "Going forward, we're looking at how we can utilize some of the other resources within VitalSource to really focus students' learning. Adult learners especially are time-starved, so we want to find any way we can help guide them to exactly what it is they need to know in order to be successful," says Dr. Gordon.

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