Mc Graw Hill Education

connect®

Connecting the **Dots**
for Student Success

The Impact of Connect on Course Preparation, Delivery & Student Success
McGraw-Hill Connect® Canadian Effectiveness Study 2016

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Book your personalized demo of Connect today.

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Introduction

Starting at the university level in Canada, studies have shown that the dropout rate of students leaving or switching institutions in their first year of post-secondary education is 20.2 per cent.

As a learning science company, McGraw Hill Education acknowledges that this is a problem that needs to be addressed. It is important that education providers have confidence in the digital technologies they introduce and use to achieve successful experiences for themselves and their students.

McGraw-Hill Connect® is a proven digital teaching and learning environment that integrates assignments, grading and course content to make the entire course experience seamless while delivering better outcomes for students and educators. Students are more engaged with course content, can better prioritize their time, and come to class ready to participate.

The McGraw-Hill Connect® Canadian Effectiveness Study 2016 is comprised of the Canadian 2016 SmartBook® Student Survey, McGraw-Hill Connect Success Stories and instructor experience testimonials.

2,100 Canadian students in post-secondary education were surveyed.

In January, the Canadian 2016 SmartBook® Student Survey sampled 2,100 Canadian students in post-secondary education who had completed a credit course using SmartBook® for their text resource. This student survey reaffirms the advantages of Connect with SmartBook® on student outcomes and retention, while highlighting learning technology preference.

McGraw-Hill Connect Success Stories are comprised of the experiences of Canadian Professors using Connect with SmartBook® as their course text resource. Each success story differs in subject and title of the text utilized. The instructor's interviews offer insight into the advantages of utilizing adaptive learning science technology in the classroom.

The aim of our survey and success stories was to learn more about how digital technologies and adaptive learning are impacting education today. We wanted to get feedback directly from the people using SmartBook® in order to truly understand the advantages a digital teaching and learning environment can provide to teachers and students.

In the following pages you will find the data we've uncovered through our research. We invite you to take a look and see what you can learn about digital educational technologies, adaptive learning and the future of education.

Impact on Student Engagement

One of the main indicators of whether a student will be successful is their level of engagement in the learning process. Students who are engaged with the material are better prepared to have meaningful discussions during class time, improving the learning environment for both instructors and students alike.

Based on the data we have uncovered, we have not only found that students are more engaged when using Connect with SmartBook but instructors are seeing a noticeable improvement in class engagement as well.

SmartBook is a more engaging study experience

Canadian Students agree that courses are **more engaging and interesting with SmartBook:**

50% agree   31% agree strongly   81%
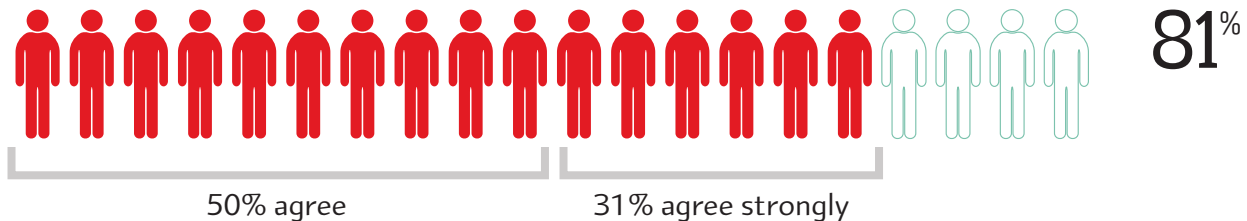
"What I like most about SmartBook is that it engages students to read the text prior to coming to class, which allows for a much higher level of discussion about the topic during class time. Also, a much higher percentage of students actually do the Connect homework assignments."
— Liz McLean,
Instructor of Canadian Organizational Behaviour, St. Lawrence College

"We chose SmartBook for its adaptive learning modules – these modules helped level the playing field when it came to base knowledge. This allowed for classes which were far more engaging for the learners and myself. I see less use of mobile devices – more engaged students – better discussion in class."
- **Rod Hayward**,
Professor of Introduction to Business, University of Fraser Valley

Impact on Class Preparedness

Requiring students to be prepared for lectures leads to more meaningful learning and challenging discussions during in-class time. As we've learned through our research, over 85 per cent of students said SmartBook helped them better prepare for class than other eBooks and over 75 per cent of students felt more prepared for class when using SmartBook over a traditional print textbook.

In addition to increased student preparation, instructors also found that using SmartBook yielded better results on exams and quizzes as well as improving overall class retention rates.

By providing benefits for both students and teachers when it comes to being prepared for class, SmartBook is helping to create a situation where everybody wins.

SmartBook is helping
to create a situation
where everybody wins

"Most students are completing the SmartBook questions before class, and many are coming better prepared and ready to tackle more challenging problems. These resources make it easy for students to prepare and for instructors to credit them for preparing,"
- **Fred Phillips,**
Professor of Intro to Financial Accounting, University of Saskatchewan

"I am finding that students are more prepared for in-class quizzes and exams than without the online practice. Especially the General Ledger questions that are available. They are a great way for students to see how systems work in the real world."
– **Brandy Mackintosh,**
Assistant Professor of Intro to Financial Accounting, University of Saskatchewan
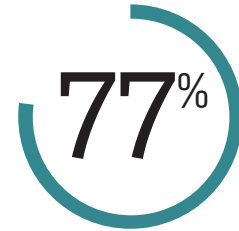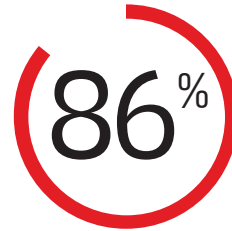
SmartBook helped me be better prepared for class

■ compared to other eBooks.
■ compared to a printed textbook.

86%

77%

Spotlight on...

Shannon Cox
Douglas College, AB – Intro to Marketing

Shannon Cox is a Marketing Instructor at Douglas College where she has taught for the past nine years. Before working at Douglas College, she taught marketing, management, and organizational behaviour courses at SAIT and University of Calgary for over 11 years.

Prior to using Connect with SmartBook, Shannon found her students were not reading the textbook in advance of class. Her class discussions were centered on core concepts and definitions and it was difficult to delve into examples and applications of marketing concepts. Class structure stayed on lecture too long, leaving less time to apply concepts in more engaging activities.

In her experience, Shannon found that students tended to only complete required activities because they are over-loaded with work and school – they only do what gets them points towards grades.

"The benefit of SmartBook as required course work is that the students do the required preparation and are ready to go beyond basic concepts when they arrive at class.

Students are more prepared for class, and more importantly, keep up with class content even during the second half of the semester. The second half of term often sees students bailing because of the number of assignments. Keeping up with readings as they go through this introductory course is a large key to their success," said Cox.

"I see SmartBook as a preparatory exercise for class discussion. Requiring students to complete the material in advance has allowed me to increase the level of difficulty or 'ramp up' the discussion as students have the basic material now to go above and beyond what we could before."
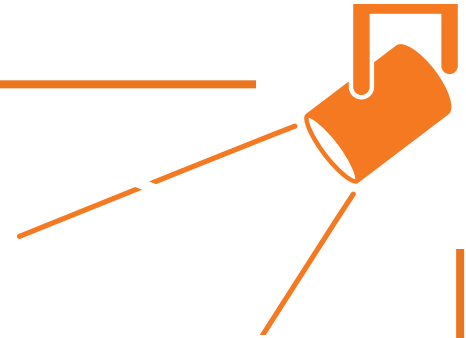
Impact on Effective Study Time

Improving the time students spend studying helps them build confidence in their course knowledge – as well as in themselves. Our research shows that 87 percent of students said SmartBook helped them study more efficiently than other eBooks and 80 percent found they studied more efficiently using SmartBook than a traditional print textbook. Students found value in getting real-time feedback, helping them adapt their focus on areas they might be struggling with.

SmartBook allowed students to practice what they learned in class and provided additional resources for further learning, helping students to absorb and understand material and better prepare for tests.

In our digital era, teachers also found students were excited to be able to use technology to help study and advance their learning.

SmartBook helped me use my study time more efficiently

■ compared to other eBooks.
■ compared to a printed textbook.

87%

80%
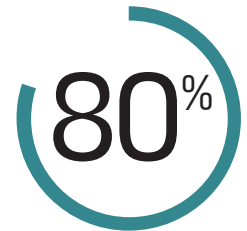
"Students find the focused learning helpful, linking the text to the modules is appreciated, and generally they find that their study time is more efficient."
— **Rod Hayward**,
   Professor of Introduction to Business, University of Fraser Valley

"Students really like the instant feedback and feel that it's a great way to improve on areas they may be struggling with. It allows students to get continuous support using technology, which is what the students are so used to using these days."
— **Brandy Mackintosh**,
   Assistant Professor of Intro to Financial Accounting,
   University of Saskatchewan

"I encourage my students to the fullest to use Connect. Doing the Connect labs is a great studying tool and practice for the tests. I also encourage the students to do the 'homework' in Connect for extra practice."
— **Annamaria Easb**y,
   Instructor of Accounting Principles,
   St. Clair College

Comprehension

Adaptive learning benefits students with diverse learning styles and needs. When completing an assignment in SmartBook, they will continually be asked questions about the material until it has been mastered. When a chapter is completed in class, they can be given an assignment to help reinforce what they just learned.

In fact, over 85 percent of students said SmartBook helped them comprehend course content better than other eBooks and 77 percent of them said it also helped comprehend course material better than a printed textbook.

Instructors have also noticed higher completion rates when using Connect, often attributed to students valuing the real-time feedback provided. If students are disengaged from the work, instructors are able to email them, providing benefits for all students – whether they are engaged or at-risk.

SmartBook helped me comprehend course content more easily

85% **77**%

■ compared to other eBooks.
■ compared to a printed textbook.

"Connect performance information also allows me to email individual students when they have not been engaging or interacting with the course for a while. This helps with border¬line or at-risk students."

— **Shannon Cox,**
   Instructor of Intro to Marketing, Douglas College

"SmartBook has assignments that must be completed before the class where we will begin discussing that particular chapter. It assesses a student's area of strength and weakness and will continue generating questions until the student has mastered the material. Students may immediately link back to the segment in the text where they are having trouble."

— **Liz McLean,**
   Instructor of Canadian Organizational
   Behaviour, St. Lawrence College

"Completion of exercises and problems is quite a bit higher with Connect. The students like the immediate feedback and say it contributes to their learning."

— **Joe Pidutti,**
   Instructor of Accounting 1 & 2, Durham College

"It's a "flipped classroom effect" where students are forced to keep up with their reading to do the online quizzes so they understand a lot more when I talk about ideas in class. There is much less time spent with me explaining basic concepts and more time with them asking questions that go beyond what we traditionally had time in class for in the past."

— **Twyla Verhelst,**
Instructor of Economics & Finance, Saskatchewan Polytechnic

Exam Confidence and Results

We understand the importance for students to be able to succeed in comprehending course content, but also being able to apply that knowledge with confidence when it comes to exams.

When using SmartBook, instructors have seen improvements in student preparedness for exams, as well as increased grade averages. Instructors have found students value the online assignments and instant feedback and some have found a correlation between positive test results and student use of SmartBook.

Our research has shown that over 80 percent of students agreed SmartBook improved their confidence before tests and exams and helped them achieve better results when compared to other eBooks. In addition, over 75 percent of students said SmartBook helped improve their confidence before tests and exams and achieve better results than print textbooks.

SmartBook improved my confidence before tests and exams

83%

77%

■ compared to other eBooks.
■ compared to a printed textbook.

"Students are more prepared and for those students who put in the effort there are very positive results."
– **Annamaria Easby**, Instructor of Accounting Principles, St. Clair College

"Every semester there is a direct correlation between the test scores and students who complete their online SmartBook assignments. On average, the students who are successfully completing the SmartBook assignments are obtaining higher test scores than those who are not."
– **Liz McLean**, Instructor of Canadian Organizational Behaviour, St. Lawrence College

Spotlight on…
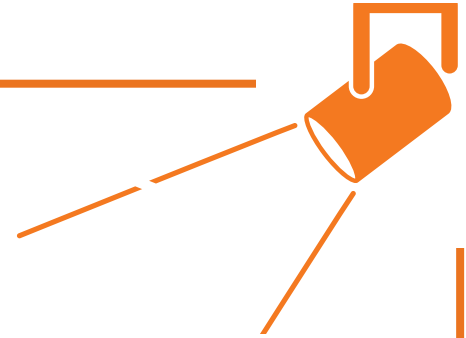
Malcolm Howe
Niagara College, ON – Intro to Marketing

Malcolm Howe is a Professor and Coordinator for the Business Administration: Marketing program at Niagara College. His areas of focus in his 23 years of teaching include introductory marketing, marketing research and marketing strategy. Malcom found that without using Connect and SmartBook applications, it had become very difficult to engage students in the material and ensure topical coverage.

"The digital technologies allow me to push the reading [and simple quizzes] onto the students in 'out of class' time and then use our class time to discuss the material at a higher [application] level."

After implementing Connect for his first and second year marketing courses, Malcolm found that the mode in many of his sections was up to 80 per cent and that those students who completed the weekly assignments got higher grades.

"I had three sections of students (106 in total) taking the Intro Marketing course. I ran correlations between their performance on in-class activities, Connect assignments, and mid-term and final tests. The overall correlation between students' performance on the Connect assignments and the final grade was 76 per cent. Given that the Connect component made up only 20 per cent of the final mark, it is pretty easy to infer that students who were successful with the Connect components saw a strong, positive impact on their overall grade."

"With Connect, I have noticed over the years that the averages for students have increased due to the completion of online assignments and the instant feedback that comes with it.
 – **Brandy Mackintosh**, Assistant Professor of Intro to Financial Accounting, University of Saskatchewan

More B students earn A's. More C students earn B's.[1]

	A	B	C	D	F
SmartBook assignments	A	B	C	D	F
Testbank question assignments	A	B	C	D	F

0 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

1. http://learnsmartadvantage.com/instructors/case-study/the-mcgraw-hill-ls-effectiveness-study/

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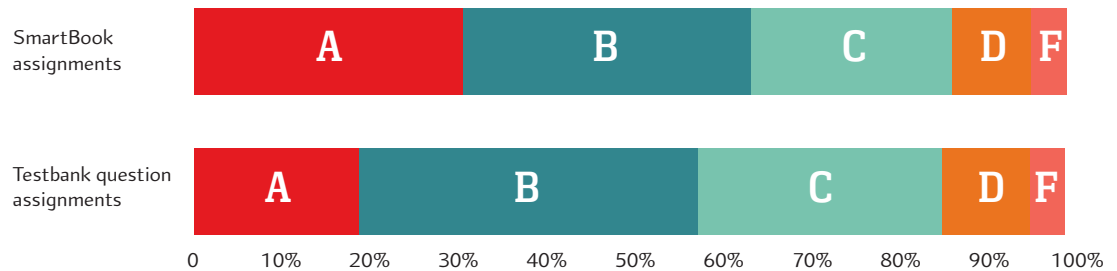
Class and Lecture Preparation

Many of the instructors we consulted for our research agreed that Connect was an excellent resource in saving them time. The ability to host testing through Connect and its automatic grading feature provided instructors with more time to focus on their lesson plans. In addition, during class time they were able to spend more time discussing and applying basic concepts instead of teaching them.

Our research showed that using Connect can more than double the amount of time spent in class devoted to concept application and active learning. On the other hand, Connect dramatically reduced time spent reviewing homework and administering exams or quizzes.

Instructors also found value in being able to create custom modules in their lesson plans as well as include additional content and links for extra learning.

Reduced Course Administration[2]

Before Connect

40% 40% 20%

After Connect

90% 9% 1%

■ Concept Application and Active Learning
■ Reviewing Homework
■ Administering Exams/Quizzes
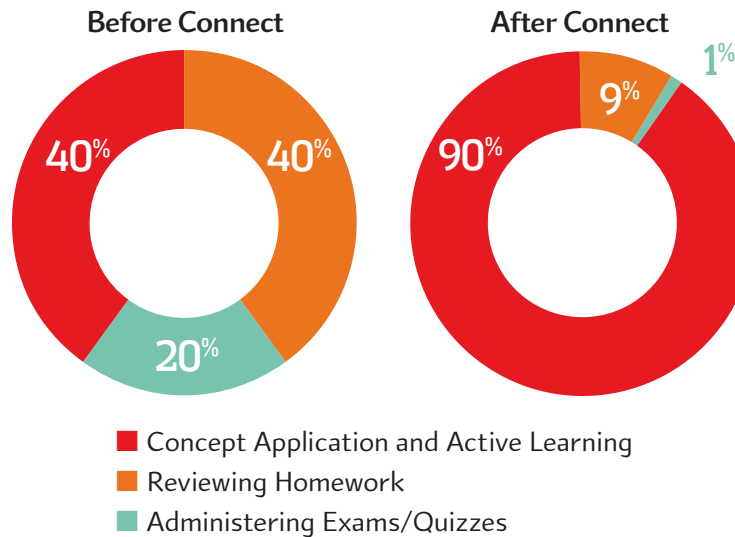
2. (1) Et al. Digital Course Solution Improves Student Success and Increases Instructor Efficiency – 2010 Case Studies (2) Welch, D. Case Study, Franklin University, Fall 2010. McGraw-Hill

"I selected Connect to allow students the access to instant feedback. It is important for them to see where they went wrong immediately. It also allows for less time spent grading these questions as the Connect system grades all of the questions for you."
— **Brandy Mackintosh,** Assistant Professor of Intro to Financial Accounting, University of Saskatchewan

"Use of Connect allows for more testing of the students with less stress on the professor for marking the labs as the labs are marked automatically. The pairing with Blackboard helps the efficiency of the process even further, freeing up more time for the professor to concentrate on lesson plans."
— **Annamaria Easby**,
    Instructor of Accounting Principles,
    St. Clair College

"I have much more time for in-class discussions because so much less time is taken up by quizzing and testing. I throw lots of extra links and resources onto Connect for students who want extra information and current applications of many of the concepts we cover in class."
— **Twyla Verhelst**,
    Instructor of Economics & Finance,
    Saskatchewan Polytechnic

"The automated grading function allows me to give a higher number of assignments for students to complete that contributes positively to higher outcomes."
— **Liz McLean**,
    Instructor of Canadian Organizational
    Behaviour, St. Lawrence College

"I don't have a formal lecture period like I used to have. Instead, my "lecture" is embedded in discussion of problems that students complete in class. I also try to make a point of previewing the "most commonly missed questions" listed in SmartBook before starting a new chapter. That way, I can know and address where students appear to need my help most."
— **Fred Phillips**,
    Professor of Intro to Financial Accounting,
    University of Saskatchewan

What is McGraw Hill Connect?

McGraw-Hill Connect® is a proven teaching and learning environment that strengthens the link between faculty, students, and course-work. Students are more engaged with course content, can better prioritize their time, and come to class ready to participate.

Connect's adaptive learning technology was the first of its kind in higher education. It is also the only proven system that spans the higher education curriculum, with representation in over 90 disciplines and both qualitative and quantitative data to support improved outcomes.

Connect includes:

■ One destination for all course content

■ Assignment and quiz banks

■ Simple LMS integration

■ Deep insights into student performance

■ Adaptive learning tools
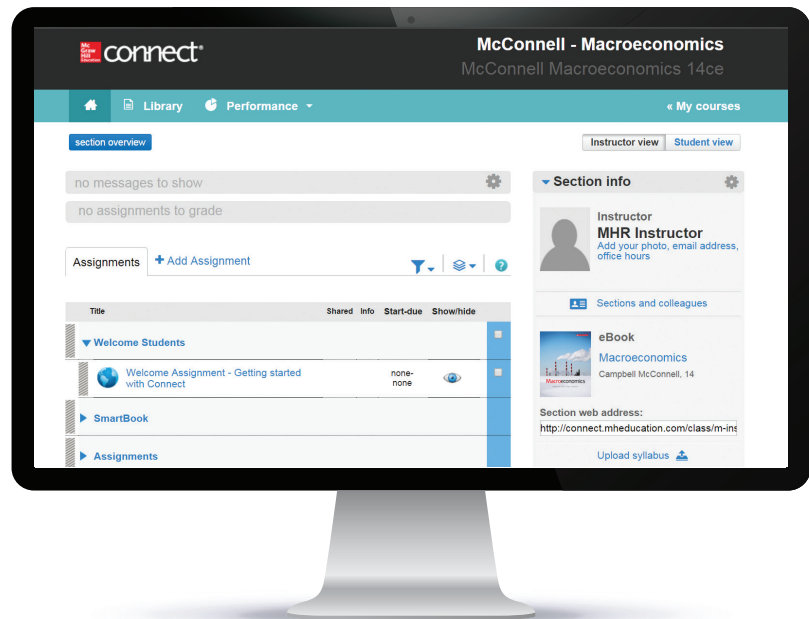
WITH CONNECT
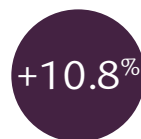
+10.8% Pass Rates

+5.7% Exam Scores

+18.0% Attendance Rates

+16.4% Retention Rates

Data compiled from independent research studies at higher education institutions.

Connect includes a **continually adaptive reading experience**, integrated learning resources and a **visual analytics dashboard** that delivers at-a-glance information regarding student performance, study behavior and effort. With Connect, **instructors can deliver course materials**, assignments, quizzes and tests online. Connect also allows students to practice important skills ensuring your **class-time is more engaging and effective**.

Connect

Learning Tools

SmartBook® is a continually adapting reading experience that provides personalized learning resources at the precise moment of need. SmartBook identifies and closes knowledge gaps to make study time as productive and efficient as possible.

Assessment Tools

Develop a curriculum for your course using the best content for your students; a comprehensive library of resources, such as **quizzes, videos, and interactives,** provides you with options you can modify to suit your needs.

Analytics

Connect Insight® for Educators presents assignment, assessment, and topical performance results along with a time metric that is easily visible for aggregate or individual results.

The Learning Science Behind Connect

**Using Metacognition to Improve
Student Confidence and Success**

Rather than use a one-size-fits-all approach to instructional
design, the SmartBook adaptive technology within Connect
creates a personalized experience tailor-made for each student.

Do students really know what they think they know? Do they know what they don't know?

These are the questions answered through metacognition. In SmartBook, students are asked to rate their level of confidence after answering each question. Over time, student self-assessment of their knowledge drives the adaptive learning experience, and SmartBook gets better and better at identifying that student's learning needs.

SmartBook also continually adapts the content presented to students based on student responses in real-time, ensuring they are always engaged with the most impactful content.

Adaptive Learning Resources Make Study Time More Productive

Students complete assigned preparatory "Reading" and "Practice" in SmartBook. Key passages are highlighted for immediate reading, according to the instructor's learning objectives. The highlighting experienced during the Reading phase and probes presented during the Practice phase continuously adapt to each learner based on their activity.

> **Do students really know what they think they know? Do they know what they don't know?**

Each Student Receives a Unique Learning Path

Each "probe" (a data-informed question) corresponds to a learning objective covered in the assigned content. Each learning objective has multiple probes spanning varying levels of difficulty. Before responding to the probes, students first report on their confidence level of whether they know the answer. Behind the scenes, the seemingly simple probes capture a myriad of data, including baseline knowledge, confidence, and user behavior such as time to select answer, time on feedback and more. This not only assesses the user's knowledge level, but also informs the next probe and the student's unique learning path.

"Recharge" Reinforces the Right Material at the Right Time

In 1885, scientist Hermann Ebbinghaus extrapolated a startling new hypothesis: Humans tend to remember only half of newly-learned knowledge in the following days or weeks unless that material is reviewed. This is known as the Ebbinghaus Forgetting Curve, and it represents one of the key underpinnings of how SmartBook works to improve knowledge retention and long-term concept mastery.

Using the data gleaned from probes, in-platform content review, and metacognitive intelligence, SmartBook uses complex algorithms to predict the moment a learner is about to

forget something. The Recharge feature then provides a resource for students to review and reinforce topics when needed. The rate of memory loss and topics covered are unique to each student, therefore the Recharge experience is entirely unique to each learner as well. The result is long-term knowledge retention that leads to mastery – and ultimately better outcomes.

Using Data to Improve Student Performance

One way to impact student performance is to provide the instructor with real-time data from students, allowing them to intervene with students when needed and adapt their course to the individual student and class. What topics have students mastered? Where are they struggling? Are they engaged? Who is at risk of dropping out? Connect's powerful, data-driven reporting gives clear answers to these questions, allowing instructors to make intelligently designed learning experiences.

Get Key Insights At-a-Glance with Connect Insight™

A visual analytics dashboard for instructors provides at-a-glance information regarding student performance that is immediately actionable. By presenting assignment, assessment, and topical performance results together with a time on task metric that is easily visible for aggregate or individual results, Connect Insight gives instructors the ability to take a just-in-time approach to teaching.

Features available within Connect make it possible for instructors to approach a class of 50 like a class of one.

Gain More Comprehensive Insights with Powerful Connect Assignment Reports

Connect can generate a number of powerful reports and charts across a diverse set of variables to give instructors the information they need to easily evaluate performance across the course, each class or by individual student to keep students on a path to success. The "At-Risk Report" highlights each student's engagement in the course material to allow instructors to quickly identify students who might be vulnerable to dropping out of a class or struggling to pass.

Know What Students Know and Don't Know

What are the most challenging learning objectives? What probes and assignment questions are students getting right and wrong? Through the reports generated by SmartBook, instructors can see where students are struggling and can tailor lectures, assignments and study materials to suit.

"Connect keeps all student information and course participation up to date. Students have few technical issues with Connect, even across different browsers and Mobile platforms. I use the SmartBook as a method of pre-reading and preparing for class. Between instructors in my Department, it has been easy for me to share the SmartBook and other features of the technology in Connect with my peers."
– **Shannon Cox**,
   Instructor of Intro to Marketing,
   Douglas College

"Simple, intuitive, lots of online and in-person help available. Easy to upload files, attach links, etc."
 –**Twyla Verhelst**,
   Instructor of Economics & Finance,
   Saskatchewan Polytechnic

Conclusion

Connecting the Dots

Our studies indicate that with Connect, students and instructors can both benefit. Students were more engaged in course material, more likely to stay in class and more likely to achieve successful outcomes. Instructors were able to make better use of their time and to implement more active instruction, intervene with struggling students and facilitate greater student success in their classes.

As shown by the instructors, having confidence in digital teaching and learning environments like Connect can help achieve desired learning experiences for instructors and students alike.

As Connect is increasingly used by instructors and students, the more we at McGraw-Hill Education can glean insights into how to facilitate increased rates of classroom success. These insights help inspire us to find more valuable ways of teaching and learning, which is of great importance to us, because learning changes everything.

With Connect

Students are:

- More engaged in course material
- More likely to stay in class
- More likely to achieve successful outcomes.

Instructors can:

- Make better use of their time
- Implement more active instruction
- Intervene with struggling students
- Facilitate greater student success in their classes.

Resources

Methodology

The performance data used in this effectiveness study is based on case studies conducted by ten different instructors from institutions of higher education. These instructors measured the effect of Connect on a set of performance indicators for student performance and instructor efficiencies using measurable metrics.

In addition to the information provided by the instructors, data was also gathered from a survey conducted with 2,100 students. The survey asked 12 questions using a Likert scale in order to determine the students' preferences between using Connect with SmartBook and a traditional print textbook.

The Numbers Behind the Study

The production of the *The McGraw-Hill Connect® Canadian Effectiveness Study 2016* is designed to demonstrate the outcomes instructors and students achieved using Connect, as well as how they are achieving them. To prepare this study, data was analyzed from the following:

- 10 instructors unique data from 2014 and 2015
- 2,100 unique testimonials from students

Book your personalized demo of Connect today.

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