



## TRANSFORMING LEARNING WITH ENGAGING DIGITAL CONTENT USING LIGHTBOX: A MULTIMEDIA SPRINGBOARD FOR PreK-12 LEARNING

*A Case Study Prepared by Project Tomorrow for Follett*

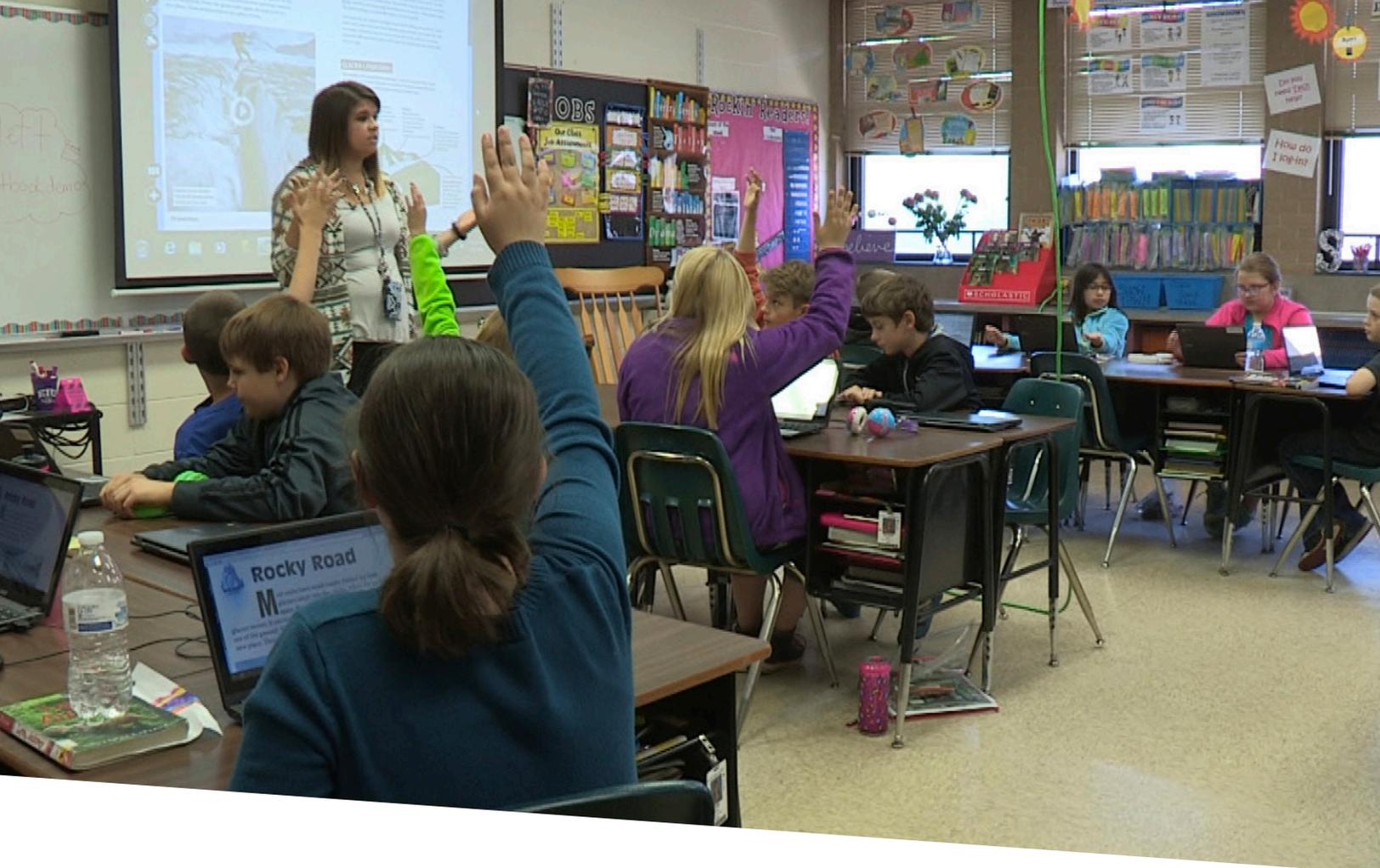
“The thing that I liked best about using the technology was that I got a chance to watch videos about glaciers instead of just reading about them. I thought glaciers were going to be boring, but they were actually cool to learn about.”

Reflections of 4th grade students from Cotton Creek Elementary School (IL) on their digitally enhanced glaciers study unit



### INTRODUCTION

School and district administrators today have a heightened sense of urgency to understand how educational technology can both support new curriculum standards and enable engaging and relevant classroom learning experiences. Increasingly, educators are turning to the implementation of digital content such as eBooks, videos, and interactive simulations in the classroom to address both challenges. Per the national Speak Up 2014 research, 61 percent of district administrators noted that the use of digital content in their schools was already producing enhanced student achievement; in 2013, only 42 percent of administrators noted that same impact.



Education leaders acknowledge that the promise of digital content to transform learning experiences is dependent upon several key factors to ensure successful implementation, including teacher knowledge on how to use the technology within instruction (76 percent), a strategic plan for implementation (53 percent), and digital resources aligned to state or local standards (52 percent). Equally important is a plan for how to evaluate the impact and success of a digital content initiative.

### **FOLLETT AND PROJECT TOMORROW**

Understanding these realities, Follett, an educational solution provider with expertise in the emerging field of digital content and resources, sponsored a multi-site study during spring 2014 to explore how curated digital content used within a variety of classroom settings transforms the learning experience for students.

Project Tomorrow®, an education nonprofit organization with 18 years of experience in digital learning research, designed and implemented the study with three schools in California, Illinois, and Wisconsin. This case study focuses on the use of a Lightbox™ to support the study of glaciers within fourth grade classrooms at Cotton Creek Elementary School in Island Lake, Illinois, a suburban community north of Chicago. The goal of the overall study, and this case study in particular, is to provide educators with new insights into how curated, interactive digital content impacts the classroom learning experience, and engages the learner with knowledge and aspirations for a new learning modality that is more personalized and relevant.

### **ABOUT THE STUDY**

Cotton Creek Elementary School is one of six schools within the Wauconda Community Unit School

District #118 in Island Lake, Illinois. Cotton Creek served 735 students last year from preschool through grade five. Among the student population, 63 percent of the children are Caucasian, and 23 percent identify as Hispanic. One quarter of the student population is from low-income families, and 11 percent of the students are English Language Learners. During the past school year, the district invested in class sets of Chromebooks so that every fourth and fifth grader at Cotton Creek would have access to this technology every day. Principal Darlene Baker especially liked how daily access to the Chromebooks facilitated increased usage of digital content both by teachers and students. Cotton Creek was selected for this study due to the school team's commitment to leveraging emerging digital tools to improve learning.



*Cotton Creek students show their excitement as they experience Lightbox for the first time.*

The study focused on how 52 fourth graders in two classrooms used a curated set of digital content from Follett's Lightbox collection that included eBooks, quizzes, read-aloud support, videos, maps, and other support tools within a complete thematic unit of study on glaciers. Students' perceptions were collected via surveys conducted before the glacier unit and then again at the end of the unit. Additionally, insights from the teachers and principal were included in the data analysis.

The use of technology by the fourth graders at Cotton Creek Elementary School was compatible with their grade-level peer group nationwide. In terms of technology use for schoolwork, the students noted in the pre-survey that they regularly used online dictionaries (71 percent), as well as the Internet, for general schoolwork research (67 percent). Approximately one third of the students had prior familiarity with

taking online tests, playing digital learning games, and watching online videos. Additionally, six out of 10 of the students said their personal preference was to read an online book vs. a printed, hard-copy book.

### **IMPACT OF THE DIGITAL CONTENT ON THE LEARNING EXPERIENCE AND THE LEARNERS**

In summary, the Cotton Creek study explored the use of a collection of curated digital content within a thematic unit of study in the fourth grade curriculum. Here are the four key findings:

1. The use of digital content transformed the learning experience for the students by increasing students' interest in the subject matter. The increased student engagement resulted in new learning behaviors and attitudes.

2. The digitally enhanced glacier unit helped girls and boys both to see themselves as more technologically literate learners with a greater interest in science.
3. Students' increased knowledge about glaciers exceeded their own expectations – and the expectations of their teachers.
4. The evidence of the transformational nature of the experience is noted in how the students discuss their aspirations for their 5th grade learning environments. From that highly positive learning experience, the students have new expectations for their learning that are more compatible with this Lightbox collection of content than traditional textbook learning.

“The audio made it easier to understand, and watching the videos helped me to see what a glacier looked like. The quizzes helped me improve how to learn more about glaciers.”

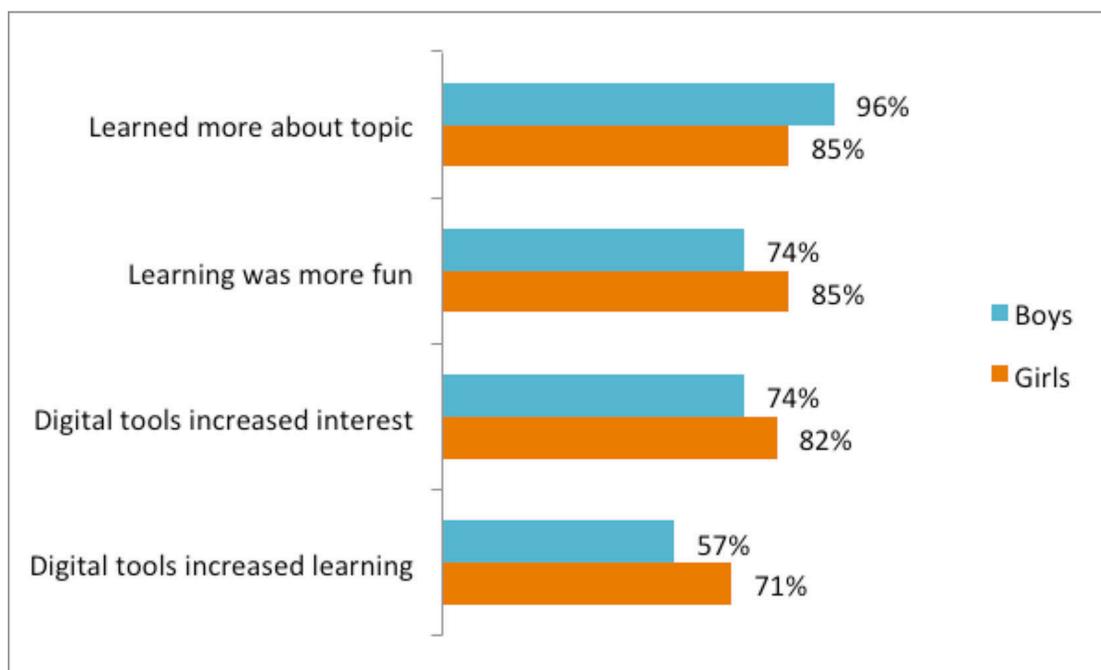
*Additional details on these study findings*

**TRANSFORMED LEARNING EXPERIENCE:**

In summary, the Cotton Creek study explored the use of a collection of curated digital content within a thematic unit of study in the fourth grade curriculum. Here are the four key findings:

- The features of the glacier Lightbox the students identified as having the greatest impact on their learning included the videos (78 percent), the interactive maps (78 percent), the online quizzes (72 percent), and the audio functionality within the eBook (52 percent). Girls especially valued the ability for the eBook text to be read aloud to them.
- The students attributed the use of digital content and tools to their increased interest in the subject of glaciers, and subsequently they connected the dots for themselves to increased learning as noted in Chart 1. Research has long documented the relationship between student engagement and increased learning potential. This was especially true for the boys who felt strongly that Lightbox provided them with additional learning opportunities.

What was the impact of using the digital content within the glaciers unit?



“It was more fun to use the technology and easier to learn about glaciers.”

Evidence of the transformational nature of the digital content used within this glaciers unit is provided by the students in terms of changes in their behaviors and attitudes around learning. Table 1 highlights how students' beliefs around learning changed because of this digital learning experience. While it is often said that technology on its own may result in increased student engagement, the strategic approach employed by the teachers to integrate the digital content within a complete unit of study is a differentiator, especially in terms of students' perceptions of their ability to learn. For example, the students were twice as likely after the unit to say the use of the digital content helped them understand what they were learning.

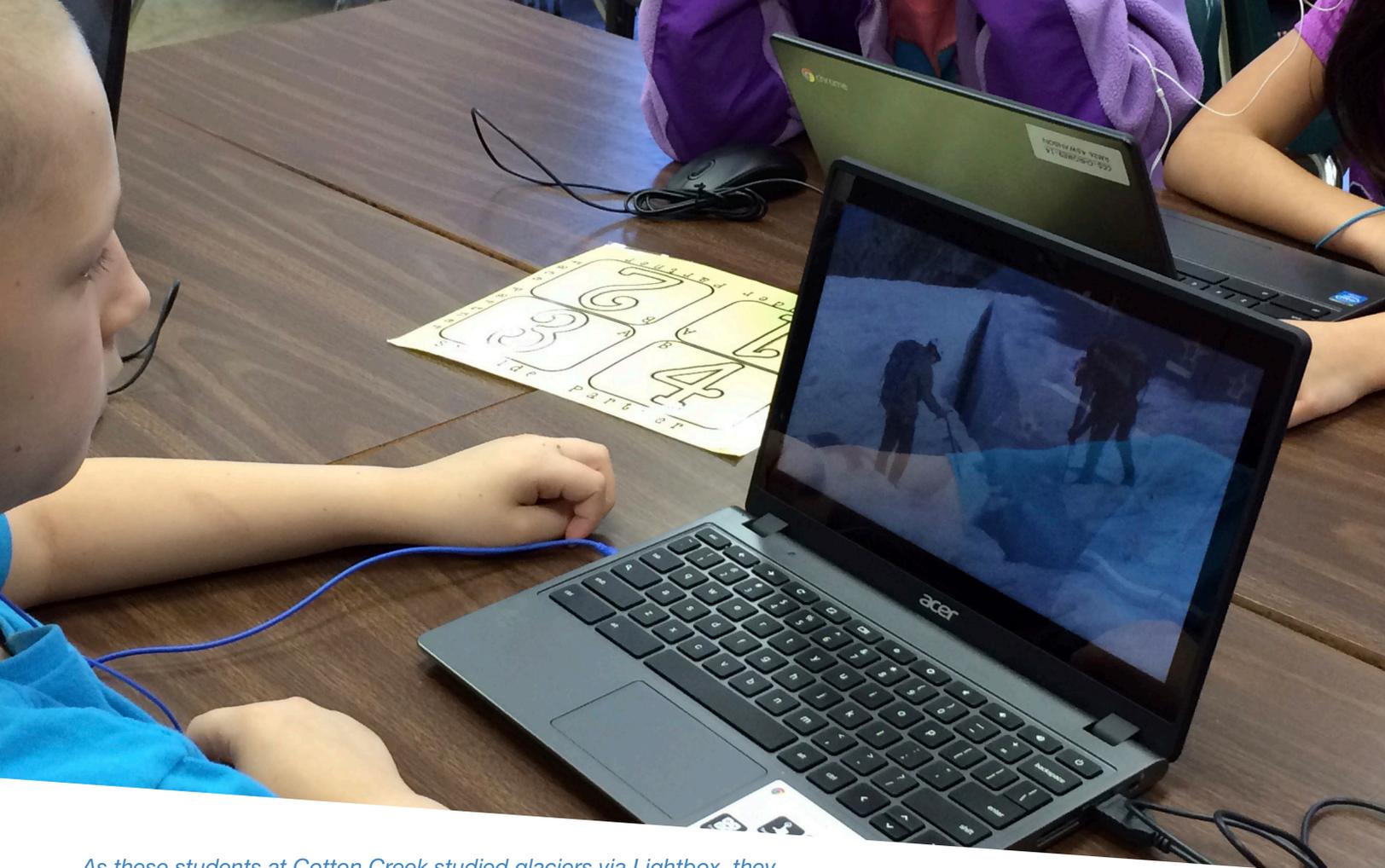
Students' belief statements about the impact of technology – before and after the glaciers unit

Students – before the glaciers unit	Students – after the glaciers unit
I understand what we are learning in class (35%)	I understood what we were learning in class (70%)
I have more control over how I learn things (50%)	I had more control over how I learned things (70%)
I get to learn at my own speed (44%)	I got to learn at my own speed (60%)
I like what I am learning more (29%)	I liked what I was learning more (60%)
I am a better thinker and problem solver (31%)	I am a better thinker and problem solver (49%)

### INCREASED EFFECTIVENESS AS A LEARNER:

- As noted in Chart 1, girls said that the use of the digital tools increased their learning. It also changed the way the girls thought about their technology skills. While 16 percent of the girls identified themselves as tech beginners in the pre-survey, only three percent felt the same way after the glacier unit. Considering that girls' self-perceptions of their technology abilities are believed to influence their interest in STEM careers, this study indicates that effective and meaningful use of digital content within classroom instruction may be one way to address that issue.
- Both the girls and boys demonstrated an increased interest in science and learning more about glaciers because of the transformed learning experience in this unit. Additionally, 50 percent of the girls noted that they had done additional research on glaciers outside of the school assignments, thus reinforcing the impact of the unit on their ability to develop as a self-directed learner as well.





*As these students at Cotton Creek studied glaciers via Lightbox, they demonstrated an increased interest in science and glaciers in particular.*

### **EVIDENCE OF KNOWLEDGE ACQUIRED:**

- When asked about their familiarity with or knowledge of glaciers in the pre-survey, 63 percent of the fourth graders said they knew just about as much as other fourth graders. Only eight percent said they knew more than their peers, and 29 percent thought they knew less. However, after the digital glacier unit, 24 percent now considered themselves advanced in their glacier knowledge and only two percent felt that they knew less than others.
- The types of knowledge acquired by the students mirror their usage of the various features and functionality within the Lightbox. For example, videos on the impact of climate change on the glaciers translated into 88 percent of the students noting an

increased understanding of how climate changes affect glaciers. Maps were highly valued by the students, and, correspondingly, 61 percent of the students indicated that they can now locate major glaciers on a map.

- This impact on student learning and proficiency with the content was a key insight from one of the fourth grade teachers as well. She noted that her students' quiz grades were higher in this unit, which she attributed to the increased student engagement in the unit content and the ability of her students to review materials as needed for self-remediation.

### **ASPIRATIONS FOR FUTURE LEARNING:**

- Students' valuation on new classroom models and learning experiences is often best expressed within the context of their own aspirations. It is therefore significant that 88 percent of the students said that every fourth grader should have the opportunity to learn about glaciers, using digital tools such as within Lightbox.
- Additionally, 93 percent of the students hope they will have similar learning experiences in fifth grade next year, another strong statement about the impact of these digital tools.



- When teachers were asked to identify their preferences for specific learning modalities within their future fifth grade classroom, the impact of the glacier unit experience is evident again. The students' wish list closely matches the learning experience they had using the Lightbox collection within their glacier unit.
- Ability to watch videos (75 percent)
- Do research in what I am interested in (65 percent)
- Read e-books or articles (64 percent)
- Listen to an audio recording (60 percent)
- Take frequent quizzes or tests so that I know what I am learning (52 percent)

A comprehensive report on the findings from this landmark study documenting the experiences of the students in all three schools will be available in August 2015.

#### **ABOUT PROJECT TOMORROW**

Project Tomorrow, the national education nonprofit organization dedicated to empowering student voices in education discussions, prepared this program evaluation for Follett. Project Tomorrow has 18 years of experience in the K-12 and higher education sector, and regularly provides consulting and research support to school districts, government agencies, business, and higher education institutions about key trends and research in science, math, and technology education. Selected findings from the organization's Speak Up Research Project on digital learning is included in this case study.