Higher education’s interest in digital content, especially e-books, has gone off the charts. With the rapid acceptance of e-books for pleasure reading, attention has now shifted to e-textbooks and their promise of significant cost savings and cutting-edge features. But getting a good grasp on the fast-moving realm of digital content for higher education can be a Herculean feat.
Three Layers of Digital Reading

Reading with a digital device requires the user to view the content through three layers. The first layer is the device itself (e.g., hand-held, PC, Mac, Smartphone). The second layer is the rendering software and controls, which format the content display and provide navigation and fine-tuning of the content’s appearance (e.g., page turning, zooming, changing fonts). The third layer is the content. Each of these layers should be optimized or configured to the needs of the end user—in this case, the student.

Creating a digital experience that can support this immersive kind of study raises the bar far beyond presenting words on a screen.
is a robust laptop home base with an ecosystem that interacts with tablets and e-readers for mobile consumption.

**Reading Software and Ecosystem**

Reading software for e-textbooks must combine the simplicity and convenience of the printed book with the unique and complex ways that students interact with educational content. The software should mimic the physical book where appropriate (e.g., page numbering) and enhance studying through features unique to the digital format (e.g., full-text search). To accommodate students’ tendency to collect and refer back to other content sources, the software should also accept external content such as personal notes and/or a professor’s PowerPoint lectures.

During our research, we found that students wanted features that replicated the physical book experience, such as highlighting and note-taking. However, because this was a “digital” format, students also expected features that were unique to the digital environment, such as quick Internet searches, tagging content, and automated study-guide creation. Commonly requested features included the following:

- Highlighting and annotation (i.e., book markup)
- Content tagging
- Full-text search within and across content
- Faculty sharing of annotation and highlights
- Integration with other content sources and learning management systems
- Integrated web resource lookup
- Study tools such as study-guide creators or flashcards
Overall, the features that were most popular with students were those that allowed them to create a comfortable and organized study environment. Our research clearly indicates that a student-focused study platform should be built around tools for content organization because studying, at its core, is an exercise in organization and access. Throughout our research, we found that some students retained their print-based methods of study while others adopted a vastly different approach within the digital environment. Platforms should therefore offer students a palette of features and tools that let them customize the study experience to their strengths. Institutions that adopt digital platforms must be aware they are also adopting the specific toolset that students are locked into for studying.

Digital platforms also need to support the needs of disabled students. The two major areas of disability to be addressed are physical and vision. Text-to-speech for both content and navigation-and-control is required. The platform should also allow for multiple input choices for every action using either a mouse or a keyboard. There are additional and varying disability requirements at each institution, so the campus disability office should be consulted whenever different digital reading platforms are being evaluated.

Content
Digital book content in higher education is centered mainly on textbooks. Today’s e-textbooks are flat, exact re-creations of their physical versions because digital and physical versions are used together in a single class. Less than 20 percent of content requested by faculty is available in a digital format, meaning that the “digital only” classroom is still a ways off.

Over time, digital content will explode out of the context of the printed book. Content will be offered at the micro level, such as a chapter at a time. We could also see never-ending links to additional content—whereby accounting content bleeds into finance content which bleeds into economics content, giving faculty the ability to cut out the exact patches of content they want. Digital platforms have also unlocked opportunities for the creation of open-source and free content, apart from textbook publishers.

Though e-books are beginning to include multimedia and interactive tools, students have expressed reserved excitement about these features. Only if these features can be organized or parsed do students think
The transition to e-reading is going to take longer than for other digital media, so an incremental approach may be wiser than an all-in commitment.

the tools would be useful. For example, they want the transcript of the embedded video as much as they want the video itself.

Summary Findings
We tested Barnes & Noble’s higher education platform NOOKstudy with students in several schools to see if it addressed the major issues we found in our research. Given the opportunity, students are willing to experiment with reading and studying digitally, but their expectations for usability and features are very high.

When reviewing digital platforms, higher education institutions should assess the platform on both reading and studying criteria. They should evaluate the entire ecosystem—including hardware, software, and the availability of content—and consult with the disability office. Lastly, institutions need to be careful not to overcommit to a solution. The transition to e-reading is going to take longer than for other digital media, so an incremental approach may be wiser than an all-in commitment.

© 2011 David McCarthy

David McCarthy
(dmccarthy@book.com)
is Director of Product Management for Digital Education at Barnes & Noble.