



Making the Shift to Learner-Centric Education

How the Next Wave of Teaching and Learning Technologies are Transforming Education

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July, 2015



This paper sponsored by
Blackboard

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Introduction

From preschool through graduate school, the key elements of delivering education: pedagogy and learning, and assessments and expected outcomes, have evolved through and with the use of technology. Today's classrooms and lecture halls, textbooks and interactive lessons, resemble their predecessors little more than a slide rule resembles a calculator. Like chalkboards of the past, today's tools of technology form the nexus of communication between instructors and students. A chalkboard, however, could not talk back; it could not anticipate the needs of instructors or students; it could not morph; and, within its immovable position at the front of one classroom, it could not convey its lessons beyond, to the larger community of stakeholders outside the classroom: parents, community, employers, or accrediting bodies.

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Yesterday's chalkboard served a less complicated world than today, in a time before the worlds of economics, business and politics intersected and began to demand that educators and their institutions produce graduates who are prepared to enter a rapidly evolving job market. This inherent tension has resulted in a series of large and small shifts that together have stirred up a perfect storm of change. On the one hand, storms can cause destruction of old models and ways of being; on the other hand, the need to rebuild and remodel offers an exciting array of opportunities to *rethink the delivery of education*.

This paper describes the challenges facing educational institutions across the spectrum, and explains how education is poised to be transformed through the lens of a *learner-centric* model, with an emphasis on ways that educational technology can help create solutions.

Methodology

Wainhouse Research interviewed a set of 12 educators and educational technologists on the topic of emerging technologies with a learner-centric bent. Blackboard, sponsor of this paper, provided interview contacts – many of whom have familiarity with Blackboard's latest offerings. This paper also draws upon the vision of Dr. Deborah Everhart, Blackboard Associate Vice President of Strategy and Adjunct Assistant Professor, Georgetown University – especially in the areas of existing weak spots in education and what educational transformation might look like. Wainhouse Research also reviewed secondary materials and drew upon its database of past research. This paper blends our own thinking on the topic of the future of higher and postsecondary education (focusing on higher education for the most part) and educational

technologies, with input from interview respondents and secondary research. Wainhouse Research thanks those who participated in this project – and notes that all quotes are the thoughts of specific individuals and do not represent the perspectives of their affiliated institutions or systems / consortia.

The Challenge(s)

Higher education faces a series of related issues emanating everywhere from the offices of university presidents to the living rooms of American families. These can be grouped (somewhat simplistically but best) into three areas of concern: costs and perceived return on investment; mismatches between workforce needs and graduate preparedness; and challenges in ensuring retention and completion.

First, there is the matter of costs.

- *Tuition increases* hover between 2.9% per year for public four-year universities and 3.7% for private non-profit institutions.¹ Add room, board, books, and expenses, and the total ticket can be painful for families whose incomes are flat or even declining.
- *Rising tuition has not yielded rising revenues for institutions of higher learning.* Different reasons have been offered for the delta between tuition increases and revenue decreases. Some are quick to blame overspending on administration and construction; others blame the inevitable tensions arising in institutions where administration must share governance with appointed regents and boards representing the concerns of business or politics. Just as likely, federal grants have not kept pace with inflation, and for state universities, dramatic declines in state spending on higher education accounts for the biggest loss of revenue – in the midst of significant increases in student enrollments.
- *Rising tuition has translated to higher student debt*, yet the perception that a college degree may not yield a higher-paying job casts doubt on the value proposition of higher education for some families. In 2013-2014, U.S. students borrowed \$106 billion. Diminishing returns on the job front (as indicated by a skills mismatch mentioned below) leaves students more cautious about taking on debt to go to school for a questionable return at the end.²

Then there is the matter of workforce needs.

- The *mismatch* between potential employer expectations and universities producing the future workforce has been well documented. Business leaders complain that colleges and universities are not producing capable job applicants; studies show a delta exists between the capabilities recent graduates believe

they bring to the workforce and the capabilities employers find those graduates to be bringing.³

- A consensus exists that *measurement and evaluation* can help inform how well an institution is making its impact; however, there is still work to be done to further close the gap between education and skills acquisition geared to future employment.

Finally, there is the issue of retention and success rates.

- It is difficult for institutions to keep up with the *drive for innovation and change* at every level of post-secondary education. In particular, Higher Ed faces challenges in retaining students, particularly those whose families can't support their students and have insufficient knowledge of financial aid opportunities. Evidence exists that approximately 21% of adults over the age of 25 – 44 million individuals – have some college credit but lack degrees.⁴
- At the community college level, and even in four-year institutions, some students may enter with *deficiencies in basic skills*, and easily fall behind. Investment in retention strategies requires human capital to orient, advise, and maintain relationships with students so they can prevent dropout.⁵

A recent survey of university presidents indicates that they know they must change. They say they want innovation and change, and they wanted it yesterday. Yet the true purveyors of knowledge to tomorrow's workers and leaders – faculty members – stand in the middle of all, racing to catch up with all the change, some faster than others. And when it comes to technology, it's a bit of a truism but worth repeating: in many cases students may actually be ahead of their instructors.

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Primary and secondary school education faces a somewhat similar set of challenges, though the issues are less about costs to families and more about equitable access to technology, funding and teacher turnover, and persistent calls for accountability through testing and assessments. This pressure has driven educators to balance the accountability demands with the needs of their diverse students for engaging and relevant lessons.

- Many families of public school students have not yet crossed the *digital divide*, a situation that sorely challenges teachers responsible for increasing test scores among students handicapped by the simple lack of broadband, chiefly those from lower-income, less educated, or rural families. Though broadband access at home in the U.S. has increased from 3% of all households to 70% between 2000 and 2013, two-thirds or less of families at income levels less than \$40,000

- per year have broadband at home, which puts both lower-income and rural students at a decidedly distinct educational disadvantage.⁶
- *Teacher turnover* in the U.S. has consistently hovered around 15% for the past ten years. The turnover rate of teachers in schools where 75% or more of the population is in a free/reduced lunch program (a demographic feature that serves as a proxy for low-income) is significantly higher (21%).⁷ This high rate of teacher turnover further degrades the stability of school districts in rural or poor communities that most need solidity.
 - *The testing backlash* has begun, with many states in the U.S. and provinces / governing bodies in other developed nations pushing back on the amount of mandated testing their learners undergo.

Have we lost our way? Wainhouse Research believes that the challenges described above – and the vast amount of noise from media and pundits and politicians – would become debilitating if educators allowed them to, because they would make one feel that education is broken beyond repair. Ultimately, however, external pressures distract from one essential point: educators know what works. Every educator we’ve ever met knows how to teach and how to engage with his / her learners. Yes – strengths and styles vary, but the point is: educators know what works. Connecting learners to resources. Exciting learners. Addressing individual needs. Providing clear guidance in assessments. Showing the connective tissue between their different learning experiences. And helping learners achieve the knowledge and skills necessary to be the adults they wish to become.

This is where technology comes to play. Educational technology has entered the classroom in fits and starts. Up to now educational technology has addressed what the technology can accomplish to address a particular pain point. Such pain points could be: “How do we manage our learners?” “How do we test our learners?” “How do we get our learners’ work onto a screen, or how do we save that work for future use and assessment?” But the world of educational technology has only now begun to be able to address the weak spots latent in the traditional work of education. Here is a short list of some essential weak spots – mileage varies by learner and educator and institution, but no one would argue to the existence of these areas:

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- **Disconnected learning experiences** – where learners find themselves unable to reap the benefits of making connections between courses, subjects, and projects, or between needs / desires / goals and the final education they receive, or in connecting online and face-to-face learning experiences. It’s as if learning takes place in silos.
- **Passive learning** – learning accomplished as if one learns simply through receipt and absorption of content, instead of via interactivity and discourse.

- **Regimented learning based on a “one size fits all” model** – the most obvious mistake historically has been to believe that every learner learns the same way. (This resulted in a one-way, singular model for delivering education.) Educational research has shown the weaknesses inherent to regimented learning.
- **Opaque assessments** – traditional assessments have been labor-intensive for educators yet often have failed to provide clear, understandable metrics. Think about how often students complain they don’t “get” their instructors’ feedback.
- **Non-transferable achievements** – in a world where we all need to *count* things, it’s been easiest to only count the whole elements: a year’s worth of credit. A semester passing grade or credit hour that conflates seat time with mastery. Often this has meant specific achievements that might otherwise be measurable are lost to the learner going forward.
- **Unclear market value** – now more than ever before, stakeholders are questioning the return on investment of a traditional two- or four-year degree. This is occurring not because such degrees might not be valuable, but because of the distinct mix of missing skill sets, rising costs, and labor markets not always mapping to graduate capabilities. That some stakeholders continue to believe that some form of postsecondary education should be free suggests that such education is still universally valued.

If technology is to be an instrument of change and a driver of innovation, it must function in an integrated way to work for everyone, both educators and learners. It must be able to assist with analysis of trends so that what is not working can be changed, and what is working can be replicated. To reach a state of seamless, integrated experiences for learners, their needs and preferences must be considered so that education can become more “learner-centric.” However, becoming learner-centric does not mean abandoning instructor needs; new approaches to technological platforms can put the educator and learner together within the same continuum (even if their roles and specific interactions with the technologies may vary).

What Does Educational Transformation Look Like?

Reinventing and transforming education begins by knowing and understanding the universe of today’s learners. While some are traditional students (18-22 age range, straight out of high school), increasingly most are post-traditional (what we previously termed non-traditional – older, combining work, family and school). They may or may not complete their educational programs in a direct line – in fact, they are more likely to weave between professional opportunities and institutions and evolve over time.

In fact, *one-third of today's college students are post-traditional – older than the traditional student*. According to 2013 U.S. census data, roughly two-thirds of college students were of the “traditional” age group, with 42% being between the ages of 20-24 years old, and 22% being 15-19 years old. Of the other one-third, 21% were between the ages of 25-34 and 15% were older than 35 years old. And: *their lives are full; they are busy*. A full 25% go to school and work full time, and another 27% work part-time. Less than half, 48%, are not employed.⁸

What does this say about today's learners? They are:

- **Hyper-connected.** With multiple devices and learning objects available to them at all hours of day and night, every learner can be connected to other learners to share work; or with educators, to ask a question or seek support; or with their content sources, whether in the library proper or online.
- **Active, social, and engaged.** They continuously engage in responsive technology, whether through social networking, gaming for badges, or using mobile devices to wake them up, or remind them of appointments and classes or assignment due dates.
- **Unique.** They expect their technology to be *personalized* and adaptable to their own needs. They may have grown up with consumer-based technologies with which they interact and which pay attention to them, responding to their needs or anticipating their questions – or made these technologies central to their lives. Thus they expect branches where they can learn what they've missed or pathways for identifying what they need to move forward. They further expect technology that authenticates them, knows them, and offers personalized and relevant information to them (provided directly or indirectly by their instructors, advisors, and administrators).
- **Seeking value.** For the money they spend (and often borrow) to attain an education, they want the end of the road to yield a pay-off – beyond an education, they expect to have the skills needed to get a job.
- **Lifelong learners.** Many students ebb and flow through educational settings. They may take breaks and finish in more than four years; they may seek skills-based training and certifications to help them advance in their chosen profession; they may return for an advanced degree after rearing children. Their situations are as diverse as they are, and to that end, education transformed must be more flexible than ever before, to allow for choices.⁹

A Brief History of Educational Technology and Learning Management

E.M. Forster’s 1909 short story, “The Machine Stops,” perhaps describes the first MOOC, through a woman named Vashti, who lives in isolation, surrounded by buttons and switches, as she delivers a lecture about Australian music to a remote, unseen audience. Perhaps Forster found inspiration in the correspondence courses women had been taking in 1800’s England; perhaps he found it in the then nascent telecommunications and telephony industries. Either way, fact and fantasy tipped off a century of innovation and invention that has led education to its next phase of delivery.

This past century – leading up to today – included delivery platforms (broadcast television and radio, audio graphics, telephony, the Internet); computers and mobile devices and testing devices and video conferencing endpoints and interactive whiteboards; and software and services. Examples of these include Learning Management Systems (LMS’s), Student Information Systems, web conferencing, assessment software, and more recently cloud-based software and nascent gamification tools.

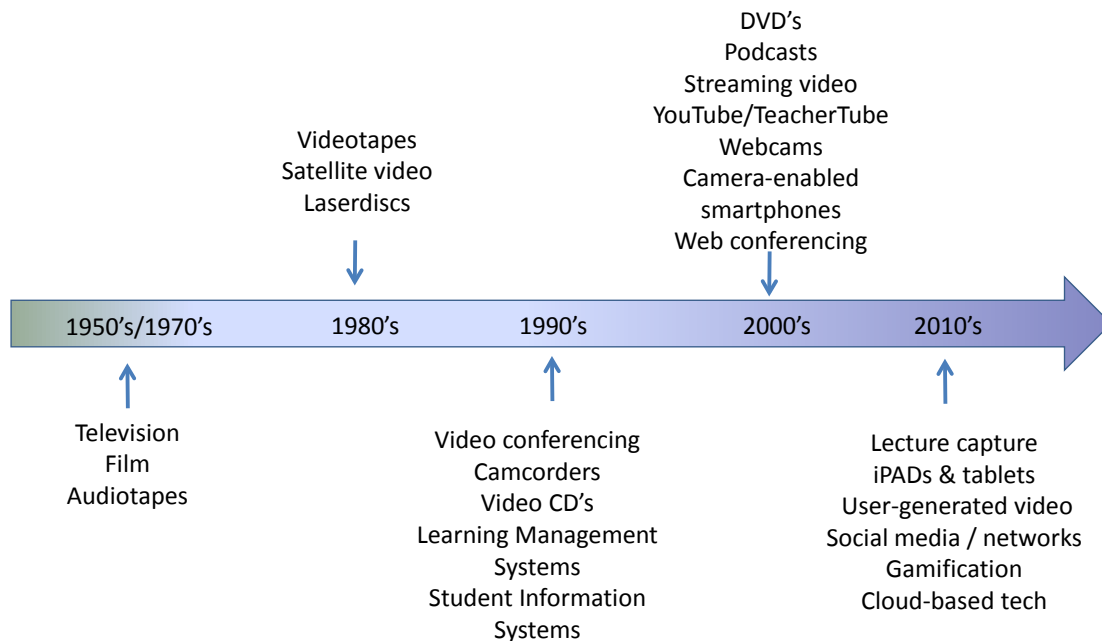


Figure 1 Recent Timeline for Educational Technology Adoption

In the rush to market, many different companies have introduced many different and varying types of software and hardware, and the diversity of technological platforms and tools sometimes has been overwhelming for those responsible for introducing them into education. The pace of change has been increasing rapidly in recent years, with the now widespread use of mobile devices—tablets and cell phones—that have

necessitated ever more mobile applications. Cloud technology has changed the way products are purchased, introduced and integrated. With all of the many choices for platforms and approaches available to them, however, colleges and universities and primary / secondary schools have adopted technologies in various ways that may or may not be efficient. We can say with some certainty that what has been missing has been the ability to meet the learner squarely where it matters. Much has been made of millennials and how they are different from any generation prior. One thing is for certain: they bring a different skill set to the workplace, and a different set of expectations for how they will be a part of that workforce. A total of 91% of millennials according to one recent study expect to stay in any job less than 3 years.¹⁰

This can be seen also in the area of LMS platforms, which initially were designed to be online repositories of information for course content, class rosters, schedules, assignments, tests and grades, and online learning. But LMS systems initially did not include other key elements related to fostering engagement vis-à-vis collaboration and communication between and among learners, educators and administrators. Over time other platforms were introduced, most notably email systems, content management systems, and collaborative technologies. But in the marketplace to date, ultimately, the sum of all of the moving parts of educational technology have not equaled a whole. It required products from many vendors to produce a whole, and when the various platforms failed to communicate with each other, the user experience was incomplete, if not downright subpar.

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Not all has been bad. For example, some institutions have mindfully adopted technology and carefully deployed it over time to address institutional and learner needs. But most schools have not had the luxury of adopting their many technologies in a considered manner. The disparate functionality of various technologies has led mindful adopters to fill in the gaps with hybrid adoption and individual platforms to work with computers, tablets, smartphones, LMSs, email systems, content management systems, social media, and collaborative technologies. The resulting chaos not

I'll be honest: when faculty ask for technology, it has to drive the learning outcomes. We won't and don't use technologies just for the sake of using it. But every one of our campuses has different policies and educators often don't know what the technologies are capable of. We are using so many different platforms, it can be a challenge.

– Patti Heisler, Assistant Director,
Advanced Learning Technologies,
North Dakota University System

only has made it almost impossible to effectively use the tools that a campus does have, but also has meant that these tools are working at cross-purposes and hindering usage. Hence, institutions and buying consortia have had to deploy multiple technologies without always being able to deliver on the collective promise of those technologies.

The problem in a nutshell: technology platforms to some extent have resided in silos, which means the educators and learners leveraging those platforms have had to exist moving from silo to silo. To create some sort of “whole,” from all of the various platforms, educational institutions may have hired vendors or worked with partners to integrate systems for them, but often these have been “kludges” – inelegant,

inefficient patchworks difficult to maintain. Add to these disaggregated platforms variegated modalities – video, data, audio, content, the result is that on demand and real time learning objects get lost over time as learners progress through their education. Up to now, no vendor has built around a concept of a holistic learning experience, and users of these silo’d technologies are calling for something new and more unified and more learner-centric. This is not to sully the many accomplishments delivered to the field of education by vendors and service providers (many of whom are often former educators themselves). But with the advent of mobile technologies, cloud computing, and some visionary behavior, it is possible now to architect more learner-centric technologies that can truly support the transformation and improvement of education.

I’ve seen schools purchase so many tools it makes it hard to all be part of the same experience. We need vendors to create the “same experience.” The whole notion of online vs. onsite learning is changing, and people are no longer thinking about the LMS as just an online course. With everything possible via value add approaches like hybrid and flipped classrooms and all these other metaphors, I’d like to think of an imaginary LMS that exists across the spectrum of different modalities, providing different functions in each but something in all. That’s where I think we want to get to.

– Dr. Colin Marlaire, Associate VP,
Center for Innovation in Learning, National University

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Becoming More Learner-Centric

Wainhouse Research has been calling for greater context-sensitivity and more learner-centric technologies for almost a decade, in the belief that such technologies might be able to deliver better outcomes for learners, their educators, and their institutions. This means, however, that how learners learn, and their capabilities and preferences, must

be taken into account. Who are today's students? What technologies do they use and how? Here are a few thoughts to ponder.

MOOCs, virtual schools, blended learning, flipped classroom, just-in-time learning, online learning, hybrid learning – you can pick your favorite, but these educational approaches (most of which have manifested themselves in the past ten years) are simply representative a) of what is possible, and b) the extent to which technology is now embedded in educational processes. Yet though technology is embedded in the lives of students, and they are generally inclined to use it and have a favorable opinion about it, it may, however, only have a moderate influence on their active involvement in particular courses or with other students and faculty. This, among other reasons, may be why traditional LMS platforms may not have been used to full capacity. Forty-four percent (44%) of respondents to an EDUCAUSE study agreed that they needed more preparation to use their institution's LMS, while 51% said they thought they would be more effective students if they were more skilled at using their LMS.¹¹ This is a loud cry for simplicity and help!

Laptops and increasingly, tablets, are still used more for academic purposes than smaller mobile devices (smartphones) – though this may change based on recent Pew Internet studies that show greater non-white reliance upon smartphones for Internet access.¹² Yet seventy-five percent (75%) or more students answering the EDUCAUSE survey said their top uses of mobile devices for academic purposes (in descending order) are:

- Communication with other students regarding class related matters
- Checking grades
- Looking up class information
- Using the course page or LMS

I'd like to see a seamless way for information to synchronize. If I post a discussion on the phone, one should see it almost immediately in the course.... from the instructor perspective, I should have a role-based linkage from the mobile app to launching a collaboration session, even be able to record right away and have it link into my class immediately.

– Mariann Hawken, Instructional Technology Specialist, Division of IT, University of Maryland Baltimore County

Anything we can do to make a piece of technology easier and more simplistic to use is better for us. For the less tech savvy instructor or learner to be comfortable, we are always looking to simplify. Previous versions of technologies have been feature heavy and with a lot of complexity. We are taking steps to get into simpler technologies now for a broader population, more non-tech savvy instructors and learners. When we introduce new technologies for teaching and learning to them, it's a big plus when we can say, 'Look how easy it is to use.'

– Russ Lichterman, Multimedia Manager, Educational Technology and Online Learning, Wilmington University

Other research indicates that 81% of college students use mobile devices to study.¹³ Obviously mobile technologies increasingly will be important going forward. And mobile technologies have afforded educational technology providers a means of rethinking how they deliver a platform for learning management and learner “touch.”

Though they rarely make full use of it, undergraduates value the LMS as critical to their student experiences. Well over half (57%) think it is very or extremely important to be able to access the LMS from a handheld mobile device. Students are most satisfied with their LMS for accessing course content and submitting course assignments reliably. Up to now, they have been least satisfied with the collaboration capabilities for projects with other students, and the ability to engage in meaningful interactions with both other students and their instructors. We think that’s about to change.

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Thinking about how learners lean on their technologies means it’s important to consider what motivates them. Overhauling the approach to learners isn’t just about saying you are building an app for a mobile device. It’s about understanding the motivations that lead learners to interact with their institutions, their professors, and one another.

And the top motivator is success. In an increasingly complex world, all individuals need to make new connections between what they know and what they need to know to be effective in their work, civic, and personal lives. Learning is social, and it opens opportunities for new relationships. While humans are naturally curious and excited by exploring new ideas and seeking new horizons, what motivates them most is realizing their own goals and achievements, large and small. New learning opens new opportunities to improve short and long-term prospects, but milestone achievements, like getting a degree, are powerful social and economic motivators.¹⁴

While technology is not the end-unto-itself, it is the enabler. The Educause ECAR survey data bears it out: When asked what features they would add if they could design an LMS from scratch, the following are the top five issues noted for improvement.

- *Social:* Better features for interaction and communication
- *Technical:* A more user-friendly interface
- *Relational:* More (or better) instructor participation
- *Access:* Ease of access to libraries, journals and other resources
- *Simplicity:* Better functionality, e.g. having the LMS function in a touch-screen environment.

Students similarly have an interest in an LMS that features real-time feedback about course progress, features to help them visualize how they are doing in their individual courses (via personalized dashboards), and support and information on their degree progress. That feedback shades into learning analytics: as the use of learning analytics matures in higher education, its use cases can be considered beyond the obvious uses for administration, marketing, and strategic planning at a system level. Over 75% of students surveyed in the Educause study would look to learning analytics for suggestions about how to improve their performance, and for guidance about future coursework, suggestions for new or different academic resources, and feedback about their performance compared to other students. Students are enthusiastic about instructors using alerts to notify them of course progress issues or if their personal progress is declining.

Envisioning a Holistic, Learner-Centric Approach

From the moment any student begins to search for the right college, he or she interacts with the institution's online presence.¹⁵ From that point forward, the opportunity exists for establishing a workflow, and a relationship, that can last for a very long time. Underlying that workflow are innovations in the essential web, cloud, and mobile device technologies, which in turn enable innovations in the user experience (UX) and the features that can be added to the Learning Management System, real-time collaborative tools like web conferencing and Instant Messaging, and other platforms for educational technology.

A Vision of Capabilities

Fortunately, learner-centric designs are making their way into higher education, driven in part by a view into mobile behaviors, in part by what cloud computing makes possible, in part by market demand, and in part by vendor innovation. For any new design to be effective, it needs to consist of a number of must-haves:

1. **All-inclusive dashboards** can cover every aspect of a student's educational timeline, from acceptance to graduation and beyond.
2. **Profiles, past grades, activity streams, access to course content and current gradebook information, course timelines, push notifications, breadcrumbs, templates and access to meta information** are all possible in a learner-centric design approach, along with opportunities to communicate with instructors and collaborate with classmates.

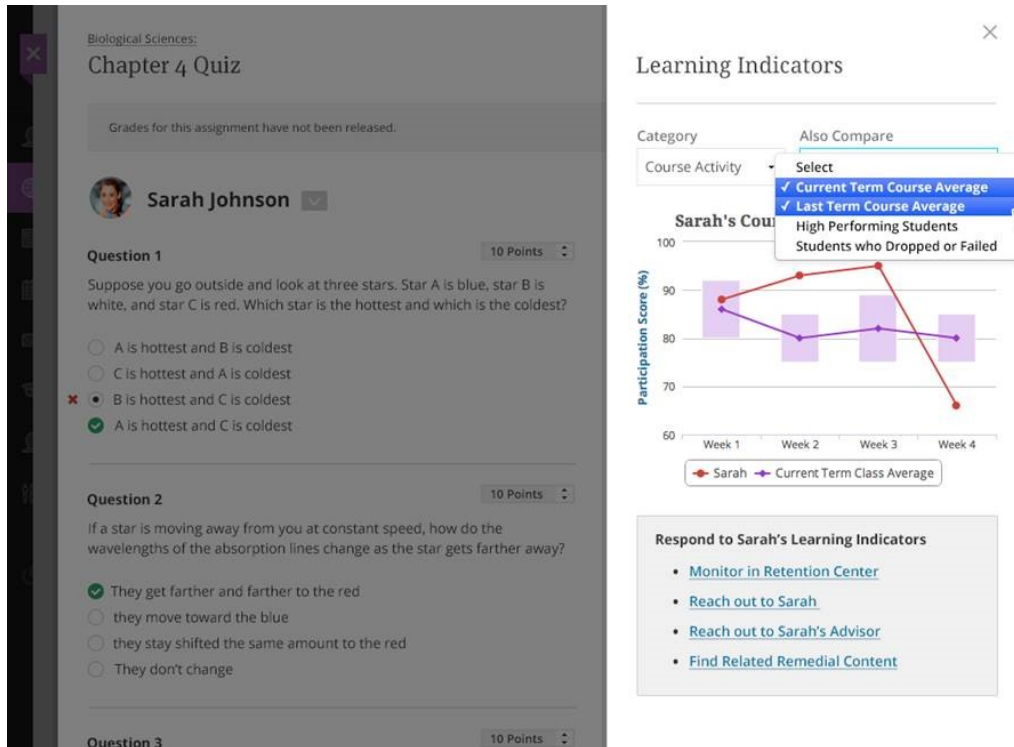


Figure 2 Sample Learning Indicators with Contextual Layering

3. **Learner-centric analytics** – personalized data that can give students ideas about weaknesses, ways to improve, courses to take, directions to go – can help them stay focused on their ultimate goals.
4. **Frictionless UI's** – in which the experience of entering the software at any point – and **guided setup** can make it easy for learners to access what they need, when they need it – and can help simplify the first-time user experience.
5. **Unique personas** – which can enable role-specific requirements. A learner needs a mobile application to behave differently from how an instructor needs that application to behave, just as an administrator's UX might be different. With intelligent design, even a parent's UX can be unique – all access can be based on needs and roles.
6. **Mobility and the use of the "touch" metaphor** – an entirely new way to interact with educational content and with people. Starting with the opportunities for a unique experience afforded by mobile apps, mobility becomes a means of creatively delivering powerful new modes of teaching and learning. Think about these ways of interacting with educational technology on mobile devices with touch screens:

Whether one is a mobile person or not, I have a PhD in Ed Tech and I recognize the need to meet students where they live.

– Marty Dulberg, Senior Coordinator for Learning Technologies, North Carolina State University

- a. Swiping between information panes
- a. Grouping of content by learner, by class, by cohort, by educator

- b. Contextualization of people in the context of events and content objects
- c. Intelligent ordering (let the system use algorithms to predict what you need to see related to your specific goals and course needs) or even to lead you in directions to reinforce learning or remediate weak spots.
- d. Intelligent visual iconography – incorporating visual cues that add additional signposts for interacting with the technology.

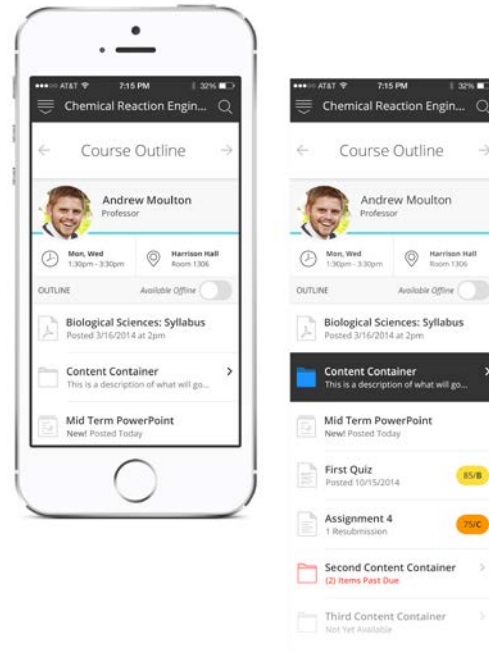


Figure 3 Sample Mobile App, Course Outline, from Instructor's View

- 7. **Seamless, integrated system** between collaboration technology, student management, social learning / social media, administrative, and other campus information systems. This means as an instructor I might need to launch a web conferencing or text session with a student or administrator at any time and from any place, or as a learner I might need to message my cohort of learners working on a particular project.

To be able to have the same User Experience across multiple devices will be huge. Providing interaction between folks and moving away from one talking head in collaborative sessions will be great. Multipoint video with multiple people will be a perfect fit for our online communication classes.

– James Gibson,
Learning Systems Administrator,
Kentucky Community and Technical College
System

Benefits of a Holistic Learning Environment

Education should help learners attain **marketable skills**, including core competencies in critical thinking, analysis, communications skills, teamwork, and complex problem solving. That starts at the beginning and never stops. Thus, secure with the knowledge that students believe they would be more organized and better prepared if they knew how to use the LMS from Day One, imagine freshman orientation. Simple skills-based training to use a very simple-to-use, well-designed, integrated technology might become Step One of giving students what they need to bolster the chances of overall success throughout their academic career.

With a personalized dashboard that integrates learning management, financial transactions, learning analytics, collaboration and social networking with classmates, academic and student support services, and communications options with instructors and advisors, students would begin their college career with all the tools they need for success, thereby raising the probability of better learning outcomes for the student, and retention for the institution. The impact of integrated services should increase adoption and usage as well, providing greater return on investment for an institution making investments in the new world of technology. Many institutions already know the best practices and are mid-story in reinventing how they incorporate a holistic teaching and learning environment. And sometimes it's best to let educators speak for themselves concerning the benefits they are finding in incorporating teaching and learning technologies.

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With a new initiative we are going to focus on graduation rates and retention. We've noticed that certain things they do for engagement on the athletics side of the institution are supporting higher retention rates. Our Dean of Institutional Research is using analytics and some faculty too are now using the reports, but we are early stage.

– David Coates,
Coordinator,
Instructional Technology
and Adjunct Instructor,
Digital Photography,
Rowan College at
Gloucester County

NIU is very supportive of technologies – for example, by taking advantage of our Retention Center to better identify at-risk students. We highlight High Impact Practices at our Teaching with Technology Institute, including Collaborative Learning. This has provided an opportunity to explore Blackboard's great collaboration tools. For my online students who never meet face-to-face, these tools facilitate community; those working on group assignments truly know each other by end of semester.

– Dan Cabrera, Multimedia
Coordinator, Faculty
Development and
Instructional Design Center,
Northern Illinois University

We have been participating in a Title V grant for several years, with significant course redesign. We use whiteboards, laptops, iPads... and in terms of retention: anything that keeps students engaged is going to increase retention. I do believe we have seen an increase in retention since our course redesign project and by using more of these interactive tools (in addition to Blackboard). Some of them have enhanced faculty teaching in traditional classes, and some for fully online classes.

– Heather Voran, Instructor,
Curriculum Design &
Technology Enhancement,
Center for Teaching and
Learning, Amarillo College

The next essential benefit is in the reduced overhead and training support on the part of administrators, and the concomitant ability to free up educators to be more creative in their teaching. With integrated features at their fingertips, technologically savvy and well-trained educators can be freed up to be creative in their teaching, and more responsive to the students' desires for them to use technology to its fullest capabilities.

It's amazing how faculty use these diverse apps. I often hear of cases where faculty use technology in ways we hadn't thought of. One college replaced ITV and started using Blackboard Collaborate as a way to engage students at remote facilities. The faculty member felt it provided higher engagement and a more interactive learning experience than sitting and looking at the television screen.

– Mark Carbon, Operations Manager,
Washington State Board for Community and
Technical Colleges

Training is less for us with the new Blackboard Collaborate Ultra. Once we get someone up and running, unless they ask for extras, it's been very easy to use. For our initial training sessions I've seen a drop in the time spent on training and fewer problems.

– David Coates,
Rowan College at
Gloucester County

Just because a college or university incorporates learner-centric technologies doesn't mean that the benefits stop at the learner level. The resulting efficiencies can impact everyone's productivity at an institution, and benefit both individuals and the institution at large.

I like the direction they are going in these new apps by being identity focused. With a new very clean UI, the feedback internally is very positive. It is a very intuitive experience how to get into chat and participant lists. That was a change but we can get used to it as long as the feature sets are added with the new UI at a solid pace.

– Kenny Barnt,
Application Administrator, Office
of Information Technology,
Central Michigan University

Technologies like Learn and Collaborate are extensively used and we are under budget constraints so we expect them to be used more widely. We are turning to technologies for in classroom, blended classroom and strictly online learning using more tools like Collaborate specifically to assist with student retention. Advisors meet face-to-face and can meet virtually to record the session. Faculty may use Collaborate for tutoring. We are highly invested in this approach.

– James Gibson,
Kentucky Community and
Technical College System

Those efficiencies *don't leave out* keeping the faculty in the loop. If anything, they offer more options for faculty to teach as they prefer.

For us, our approach is to enable the faculty to be able to do whatever they feel they need to in their class. We are very faculty-centric. We have a build it and they will come model, and a feature request system. We evaluate and look at impact on the university that way.

– Marty Dulberg,
North Carolina State University

For teaching, the new ease of joining a session (in Blackboard Collaborate) is a game - changer. It is going to lower the barrier to entry for new users. The impact of guided setup and increased use of video will be big and will drive a culture change for our school.

– Debbie Faires, MLIS,
Director of Online Learning,
School of Information,
San Jose State University

Conclusion: How a Holistic Learning Environment Can Facilitate Lifelong Learning

From kindergarten through college graduation through life, students need to be able to walk their path with their accomplishments in hand to open doors. Throughout the entire educational process, students should have clearly defined goals, and an understanding of how they will achieve those goals. An integrated, holistic learning environment will provide multiple pathways for this, even if a student has to take a break for a while, then re-enter the formal educational process as his or her life changes. Portability and transferability helps connect college to careers, from learning to opportunity.

Active, engaging and social educational experiences must offer facilitated peer learning and interactions with a variety of different resources, most especially, the instructors and professors who have much to share. Offering a structure of hyper-connected, multiple touch points working together with the option of personalization offers support for learners throughout their journeys both within and beyond their coursework. And when they graduate, they will be leaving with much more than a diploma: learner-centric technology will enable them to take their work with them as they go forward into the rest of their lives.

About the Author



Alan D. Greenberg has more than 25 years of experience as consultant, analyst, communicator, and strategist in the field of educational and collaborative technologies. He has authored dozens of reports, analyses, research notes, and profiles related to distance education, online learning and e-Learning, virtual worlds, web and video conferencing, interactive whiteboards, Learning Management Systems, and lecture capture, and he is editor of the free Wainhouse Research Blog. Alan also consults to colleges and universities as well as regional networks on matters related to adoption, policy, and deployment of these products. He can be reached at agreenberg@wainhouse.com

About Wainhouse Research



Wainhouse Research, www.wainhouse.com, is an independent analyst firm that focuses on critical issues in Unified Communications and Collaboration (UC&C) and collaborative educational technologies. The company conducts multi-client and custom research studies, consults with end users on key implementation issues, publishes white papers and market statistics, and delivers public and private seminars as well as speaker presentations at industry group meetings.

About Blackboard, sponsor of this paper

Blackboard

Blackboard is the world's leading education technology company. We challenge conventional thinking and advance new models of learning in order to reimagine education and make it more accessible, engaging and relevant to the modern day learner and the institutions that serve them. In partnership with our customers and partners in higher education and K-12 as well as corporations and government agencies around the world, our mission is to help every learner achieve their full potential by inspiring a passion for lifelong learning. For more information about Blackboard, follow us on Twitter [@Blackboard](https://twitter.com/Blackboard).

End Notes

¹ Bieda, Anthony S., "Closing the Gap between Career Education & Employer Expectations: Implications for America's Unemployment Rate," December 2011, The Accrediting Council for Independent Colleges and Schools.

² Woodhouse, Kellie, "Who's to blame for rising tuition?", Inside Higher Ed, May 5, 2015, <https://www.insidehighered.com/news/2015/05/05/report-says-administrative-bloat-construction-booms-not-largely-responsible-tuition>

³ Falling Short? College Learning and Career Success, Hart Research Associates – American Association of Colleges and Universities, January 2015 <http://www.aacu.org/sites/default/files/files/LEAP/2015employerstudentsurvey.pdf>

⁴ U.S. Census Bureau American Community Survey, 2013 <http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>

⁵ "How Colleges Organize themselves to Increase Student Persistence: Four Year Institutions: College Board Study on Student Persistence," April 2009, Indiana University's Project on Academic Success.

⁶ <http://www.pewinternet.org/2013/11/05/the-state-of-digital-divides-video-slides/>

⁷ Di Carlo, Matthew, January 22, 2015, "Update on Teacher Turnover in the U.S.," Shanker Institute, accessed at <http://www.shankerinstitute.org/blog/update-teacher-turnover-us>.

⁸ <http://www.census.gov/hhes/school/data/cps/2013/tables.html>

⁹ May 1, 2015 Interview, Dr. Deborah Everhart, Associate Vice President for Strategy, Blackboard and Adjunct Professor, Georgetown University

¹⁰ http://futureworkplace.com/wp-content/uploads/MultipleGenAtWork_infographic.pdf

¹¹ Dahlstrom, Eden, and Jacqueline Bichsel. *ECAR Study of Undergraduate Students and Information Technology, 2014*. Research paper. Louisville, CO: ECAR, October 2014. Accessed at <http://www.educause.edu/ecar>.

¹² <http://www.pewinternet.org/2015/04/09/mobile-access-shifts-social-media-use-and-other-online-activities/>

¹³ McGraw-Hill Education's 2015 Digital Trends in Higher Ed, <http://www.mheducation.com/about/news-room/report-new-mcgraw-hill-education-research-finds-more-80-percent-students-use-mobile>, March 2015

¹⁴ May 1, 2015 Interview, Dr. Deborah Everhart, Associate Vice President for Strategy, Blackboard and Adjunct Professor, Georgetown University

¹⁵ Noel-Levitz, *2014 E-Expectations Report: The Online Preferences of College-Bound High School Seniors and Their Parents*, accessed at <https://www.noellevitz.com/papers-research-higher-education/2014/2014-e-expectations-report>.