Conversations on Quality

A Symposium on K-12 Online Learning

Hosted by MIT and the Bill & Melinda Gates Foundation

Held at Le Meridien, Cambridge, Massachusetts

January 24-25, 2012

Table of Contents

Executive Summary

Introduction

Conversations on Quality is part of a series of structured discussions among industry leaders, hosted by MIT and the Bill and Melinda Gates Foundation, and designed to improve the quality of online learning in K-12 education. By bringing together experts from around the country, these conversations promote the exploration of shared issues and solutions related to quality in online learning for grades K-12, including: learning outcomes, deep learning, accelerated learning, learning access/success of underrepresented students, more flexible learning, and relevance and quality of learning.

In pursuit of that goal, a symposium was organized in January 2012 that brought together over 75 national experts to discuss the challenges of online learning environments. The goal was to allow participants to leverage and learn from each other's successes and challenges, realize higher goals for online and blended learning through collaboration and interaction, and energize the national discourse on K-12 online course quality.

Themes and process

For this symposium, the conversations focused on three major themes:

- the *design* of high-quality learning environments
- the *assessment* of high-quality learning environments
- the ability to *scale* high-quality courseware.

A series of workshops and presentations, followed by collective discussion, addressed each of those themes, and the results of those conversations are recorded in this report. The ultimate goal was to collectively articulate a vision for high-quality online learning based on an understanding of the current state of the field and identification of key issues and major gaps. Detailed discussion of each of these themes is presented below.

Theme One: Designing Quality

Background

Designing a quality, scalable online education program that enables student learners to immerse themselves comfortably in a learning experience is a challenge. Designs must support student practices that mirror what domain experts already routinely do. For a design to be successful, it must

- Allow for a rich, structured information base.
- Encourage a culture of problem solving and inquiry.
- Use strategies that build meta-awareness and meta-cognitive skills for both students and teachers.
- Design for variability and multiplicity among others.

Following a panel discussion, moderated by Eric Klopfer, the symposium participants investigated the challenges and opportunities in designing quality online courseware. Cecilia d'Oliveira (MIT) and Robert Torres (Gates Foundation) facilitated the group discussions, which focused on the following five topics:

Domain-Based Learning	How can we develop and deliver high-quality online courseware that supports domain-specific learning?
Trajectories Toward Mastery	How can we increase interactive student engagement compared to passive activities? How can we increase learning by doing?
Selecting Appropriate Media and Tools	How can we promote educational quality based on what learning experiences and trajectories are supposed to be supporting? How can we ensure that the design, use and integration of media and tools account for social, cultural, and cognitive foundations?
Distributed/Ecological Learning	How can learners have varied and diverse opportunities to experience, produce, and apply their knowledge and skills to content?
Learning with Data and Feedback	How can we provide a high-quality, data-driven program that provides students' data and feedback as an integral part of learning?

Key Themes

The following themes emerged from the workshop discussion:

- When either developing and delivering online courseware, or supporting domain-specific learning, it is important to understand how people learn by bridging research and practice.

- Designs should recognize the importance of learning through doing, and increase the proportion of constructive and interactive student engagement over passive learning.
- The promotion of educational quality through multimedia and digital tools should be centrally based on the set of learning experiences and trajectories that are to be targeted and supported.
- Learning should be designed to support the social, economic, and cultural values of the 21st century.
- Program design should use data to provide salient, compelling and real-time information, in order to indicate progress, measurable goals, and next steps for the student.

Challenges

Through these discussions, participants offered the following challenges from the current online courseware landscape:

- Educators must be trained in how to build the principles outlined above into their teaching and curriculum.
- Move toward refining and improving human interaction and engagement, and creating blended forms of instruction, is superior to exclusively online teaching.
- Avoid generalized technology designs and propriety technologies that promote uniformity and closed systems that do not fit the purposes and goals of specific learning needs.
- Seek infrastructures that encourage collaborative construction, connect content to assessments and goals, allow the viewing of iteration and development over time, and promote the open and public sharing of activities.
- Merge the complexity and degrees of freedom provided through production with engaging, relevant, and conceptually deep understandings in order to develop global citizenship.
- Shift the culture of education to ensure successful implementation of high-quality, data-driven courseware—provide tools and training for educators to make data meaningful and applicable.
- Develop a clear understanding of what students need to know to ensure predictive, reliable, and valid measures before the designing of courseware begins.
- Convince designers to develop on open platforms in order to allow data be integrated across multiple products.

Recommendations

The workgroup recommended the following next steps:

- The design of quality domain-based learning should allow learners to immerse themselves in the cultural and technical practices of real-world knowledge domains. This may include:
    - Using familiar designs or methods for users.
    - Building meta-awareness and meta-cognition for both students and teachers.
    - Embracing a Universal Design for Learning (UDL) approach to allow variability and multiplicity (rather than a “one-size-fits-all”).

    - Building teacher capacity so they can access knowledge and resources effectively to support domain-based learning.
- To build learning within clearly defined trajectories that lead to mastery and overcome the costly form of instructional development and design, consider:
    - Infrastructures of collaborative construction that promote scalability.
    - Open and public sharing of activities, design documents, and rationales.
    - Connection of content and assessments.
    - The ability to view iteration and development over time.
- To embrace media as tools for active knowledge creation:
    - Design the learning experience first and then select media/tools.
    - Situate such media and tools on the embodied meanings that are relevant to learners.
    - Extend resources and learning pathways through data mining.
    - Focus on production and participation—not just consumption and spectating.
    - Converge media whenever possible—tools should integrate together.
    - Embrace universal design: accessibility of media is important and often resides within a tool.

Theme Two: Assessing Quality

Background

Assessment involves measuring outcomes to determine whether the learning objectives of a teaching experience have been achieved. The quality of learning is determined by assessments that are designed and validated to measure progress towards the specific learning goals.

Assessment lies at the heart of any educational process, for that very reason it's not easily seen from the outside. Often it's much easier to simply *state* a set of objectives for student learning or a learning environment, than to actually *measure* whether these objectives have been met. This is especially true for online learning environments, which are relatively new pedagogical tools, and present a broad range of new properties in the teaching and learning experience.

An online learning environment is designed to provide a user experience that should facilitate student learning. But in many cases, there is not yet strong consensus on the ideal learning objectives or desired features of a learning environment. Under these circumstances, the group determined that it would be most useful to state the general characteristics and desirable objectives for quality learning, noting the unique assessment opportunities presented through the pervasive data capture in online learning environments, followed by a discussion of the recommended features and best practices in an online learning environment that will support future assessment goals.

The workshop participants covered these topics throughout their session with David Pritchard (MIT) and Ed Dierterle (Gates Foundation) facilitating the discussions.

Key Themes

What is quality learning?

The group offered the following high-level properties that describe the *quality of learning* for an online learning environment in a teaching and learning experience:

- A set of clearly articulated outcomes is presented for both teachers and students.
- There is an appropriate balance between the challenges presented to the learner, and the amount of meaningful and engaging content.
- The time required for teaching and learning is efficiently allocated.
- The content presented is rigorously prepared and valuable for the learner.
- There are opportunities for embedded assessment of progress towards learning objectives, which provide the teacher and student with actionable and transparent feedback that will assist the learner.

Desirable Objectives

The group agreed on a set of desirable objectives for online learning environments:

- Build domain expertise and help novices become experts in a field by preparing the learner to:
    - Practice the discourse and modes of thought of domain experts.
    - Combine facts, concepts, and procedures as a form of strategic thinking.

    - Tackle ill-structured and more authentic problems, or apply existing tools in new ways.
- Build general expertise in the learner in the following areas:
    - "21st Century Skills" such as Thinking and Problem Solving, Communication, and Collaboration.
    - Ability to find, judge and utilize online resources for learning and problem solving.
    - Practices that promote creativity and innovation.
    - Good work habits, good citizenship.
- Promote continuous quality improvement through data mining and analysis:
    - Make assessments drive learning paths for both individuals and classes.
    - Allow data to drive the design and re-design of both platforms and content.
    - Data should be used by educators to improve learning and implementation.
    - The foundational basis for assessment is broadened in order to supplement the current focus on high-stakes testing.
- Attention to Learning
    - Impart meta-cognitive and meta-learning skills.
    - Assess factors that impact learning—memory, attention, motivation, and resilience.
    - Assess more authentic tasks, projects, and presentations.
    - Goals are stated so that unequivocal evidence of mastery can be obtained.
    - Learning trajectories are mapped toward goal achievement, and next steps are suggested.
    - Students are constantly informed about progress and encouraged with positive feedback loops.

The unique opportunity for online learning environments

Online learning environments offer a unique and revolutionary feature: the ability to provide raw data about details of student learning behavior and interactions in unprecedented detail. The level of detail provided through online systems greatly exceeds a typical gradebook or written teacher assessment. In addition, because these data are time-stamped, they actually approach the ideal state of allowing direct observation of the learning process and learning time. The capture of such data offers an exceptional opportunity for the improvement of individual pieces of instructional and assessment material, and online education in general.

To make these data actionable, they must be *mined and analyzed* to provide the types of information that can be used for summative and formative purposes. Unfortunately, data mining and analytics in learning systems are still in an infancy stage, and many of the assessments that would measure the desired outcomes of a quality learning environment lay far outside the current high-stakes testing domain, and have not yet been developed. Thus, for the present, quality of the online learning environment must be assessed along two directions: having *many highly desirable features* and conforming to the *best practice*s in pedagogy, instructional design, social networking, etc.

Desirable Features

The group offered the following features as strongly aligning with goals for quality assessment in the future:

- The *usability, adoptability, and compatibility* of the current systems, which can be assessed by potential users.
- *Data mining and display* with deep analysis and clear displays to student, teacher, administration in order to:
    - Provide an in-depth profile of student's current status in meeting learning objectives, as well as that student's skills, habits, and affect.
    - Tell a student how s/he's doing and where to concentrate.
    - Guide the teacher in helping individual students as well as the class as a whole.
    - Improve instructional and assessment content at the module and problem level.
- The online learning environment should *adapt to learners* through tools that:
    - Contain content and assessment for an entire range of anticipated users.
    - Include remediation processes for low-skill students, and challenges for high-skilled students.
    - Contain instructional scaffolding for a student's area of need (i.e., when stuck on how to start a problem, when they can't understand some conceptual learning goal, etc.).
- The online learning environment should offer *blended learning opportunities* that provide teachers and administrators with alternative forms of evidence that learning goals have been achieved, beyond high-stakes testing.
- Online learning environments should be *open source with content sharing* across systems (which can be especially difficult for interactive assessment content).

Best Practices

The group offered the following set of best practices for assessments when teaching and learning in online learning environments:

- Externally validated assessments should be aligned with learning objectives and result in actionable recommendations for improvement as well as summative evaluation.
- Poor student performance on assessments should be reviewed in order to be certain that poor student performance is not caused by extraneous factors (e.g., vocabulary on word problems in math, uncertainty on exactly what the student is supposed to do, or their skill in using a mouse to draw straight lines, etc.).
- Assessments should increase the level of challenge based on an individual's current skill level (as determined by up to date data mining).
- Assessments should adapt to general learning and instruction practices of the teacher.

Challenges

Assessments are behind the curve

While there is a great deal of innovation occurring in the online learning environment and many ambitious learning objectives, assessment of these objectives lags far behind. There is a relative paucity of ideas about how to measure many of these objectives, and the assessment working

groups suggested no exemplary online assessments. For example, there is consensus that domain-specific problem solving, discourse and expertise should be learned, but no instruments to measure these objectives. The group noted the following areas as presenting specific challenges:

- Lack of available assessment material on same scale as instructional material.
- Lack of ways to combine assessment and instruction.
- Lack of methods to assess student affect and effort.
- Lack of definite and agreed-upon language for complex online competencies.
- Lack of understanding in the assessment community of how to assess complex context issues and their associated skills and habits.
- Lack of systems that can systematically and rapidly generate learning evidence.
- Cultural skepticism about whether certain skills and habits are really important and teachable.

Reluctance of System to Adopt New Assessments

There may be structural aspects within the educational system that create a reluctance to embrace the new types of assessment that online learning environments require:

- The broad and unspecific learning goals presented here are difficult to grasp, enunciate clearly, and plan lessons for. Even carefully researched and developed assessments of them may be controversial.
- Ceding authority for both instruction and assessment to the online learning software and its metrics may be viewed by teachers as an invasion of their autonomy and a threat to their profession.
- There is a significant effort required to redesign the methods and means of instruction in online learning environments in order to suitably blend online learning and its assessment into the classroom.
- We currently have a lack of evidence that delivering quality online courses will help with the well-established metrics of high-stakes standardized testing that currently pervades K-12 education.
- Any quality online assessment program would require strong teacher participation and training, which presents a challenge.

Lack of resources for developing, vetting, and sharing assessment items and inventories

The development of assessments can be a long and arduous process. It requires the following elements, which are resource intensive, and potentially prohibitive:

- Generating items with face validity.
- Determining that students interpret them as intended.
- Administering them across the variety of students they will be used to assess.
- Assuring the statistical reliability of the assessment.
- Verifying its validity and lack of discrimination against various classes of student through follow-up studies.

Recommendations

The group agreed that the following steps would advance the role of assessment in developing online learning environments:

- Assessing Learning of Expertise
    - Research and develop assessments that address more robust skills beyond rote knowledge; include 21st Century Skills.
    - Develop better theory and understanding of paths to mastery and in-product use.
    - Examine transferability of learning, e.g., to subsequent courses in the same domain.
- Assessing Online Learning Itself
    - Examine payoff of alternative models and designs; A/B comparison testing.
    - Understand the teachers' roles in making online learning effective and accepted.
    - Look at subgroup performance and discover ways to help all students succeed.
    - Assess ways to improve learner satisfaction.
- Assessing the Platforms
    - Identify essential ingredients of platform quality.
    - Examine repeat online course takers: Does experience and practice lead to greater success? Can students be "trained" to succeed in online courses?

Theme Three: Scaling Quality

Background

The scaling of quality online educational programs is a challenge, largely because of contextual considerations that inhibit the broad adoption of programs in settings other than the original one. For a program to be broadly adopted, it must allow significant levels of adaptation—it must encourage and capture community participation, and readily adapt to local contexts, without increasing resource demands. Scaling challenges can be understood by focusing on five major topics:

- Adoption and Implementation
- Cost
- Choice
- Standards and Information
- Authorship

A panel discussion on scaling considerations was moderated by Vijay Kumar, with presentations from Chris Dede, Judy Codding, and Cathy Casserly that set the context for the workshop groups and stimulated discussion.

Chris Dede introduced the following five-dimensional framework as a way to evaluate the feasibility of scaling online courseware:

	Definition	Common Errors
Depth	Considers the sources of the online courseware's effectiveness, and whether it can be easily transplanted into a different educational setting.	Failing to account for the importance of interactivity and personalization in designing the courseware.
Sustainability	Addresses whether the online courseware is designed to allow for modifications in different, potentially inhospitable, settings.	Taking a one-size-fits-all approach to both the context for learning, as well as the type of learner.
Spread	Concerns the resource cost barriers that allow or prevent adoption of the tool.	Not considering the need for low barriers to entry, with minimal resource requirements in order to permit broad adoption.
Shift	Examines the collaborative aspects of the tool that encourage common ownership of educational material and innovations.	Focusing too much on "brand", instead of co-ownership of innovation and deep collaboration among adopters.
Evolution	Focuses on cycles of continuous improvement, so that new learnings are frequently diffused back to adopters.	Failing to periodically redesign the tool based on community feedback.

Judy Codding from Pearson Education spoke about the development of a digital curriculum for use in online courseware. She detailed the pedagogical model behind the course, and related it to the scaling framework presented above. Cathy Casserly from Creative Commons presented a summary of how the Open Education movement, and the Open Education Resource commons, has impacted online courseware. She discussed the current barriers to scaling, focusing on intellectual property laws.

The panel highlighted the interplay of adoption and adaptation as crucial to scaling:

- When extensive access to course material is combined with an ability to rapidly develop courses, it promotes adoption.
- It is equally important, however, that such a system promotes adaptation through the creation of customized learning experiences by modifying existing materials.

The panelists also emphasized the importance of a systems perspective for scaling: Success is influenced by the creation of a technological and organizational context that supports adoption and adaptation. Both administrative policies and technical features work together to promote scaling. The creation of policies at an institutional, state, and national level will strongly impact the process of scaling.

Workshop Groups

Five workshop groups focused on the following topics, in relation to the challenges faced when scaling online courseware:

Adoption and Implementation	What are the biggest pain points for adopting new tools, and how can they be overcome?
Cost	Is cost a barrier to successful scaling, or does it function as an indicator of value?
Choice	Who makes decisions around courseware adoption – districts, teachers, parents or students? What would an ideal selection process look like?
Standards and Information	What type of information is required in order to allow decision-makers to evaluate courseware?
Authorship	How do a teacher's content contributions to courseware impact scaling?

Key Themes

The interplay of quality, scale, and cost

The identification of quality learning programs through agreed criteria—such as quality, scaling, and cost—is essential to creating informed decision-making around adoption. Consensus

emerged that for any decisions around online learning, one must consider each of these themes in relation to each other.

At present, there is no clear standard to judge the quality of online courseware. However the group offered the following criteria:

- *Embedded and aligned:* A clear connection must exist between the courseware and the learning community that it serves. The program should align with the core curriculum of a school, and be embedded in the domain that it serves.
- *Adaptive and flexible:* The courseware should support a variety of instructional styles and adapt to different learning needs. It should allow for a variety of non-linear paths to learn material, and offer multiple options for demonstrating mastery.
- *Outcome based:* In order for the courseware to prove its effectiveness, it must be able to demonstrate performance-based, positive outcomes for students. The courseware must be tied to high standards.
- *Teaching focused:* A focus on the process of learning is essential. Both instructional support and highly engaging experiences are required. The courseware must promote problem-solving skills and informal learning expeditions, and allows teachers to construct contextualized experiences.

The group agreed that scale is the ability to extend the impact of outcomes through an adaptive process without a proportional increase in cost. The following themes emerged as key criteria:

- *Integration*: The courseware should be easily integrated into existing data system.
- *Modifiable:* The content within the courseware can be changed to reflect local requirements. It can incorporate multiple types of assessments, and adapt to individual needs
- *Flexible adoption:* The adoption of the courseware can follow a local timeline, and can occur in flexible stages. It can be implemented in a blended or fully online environment.

The group had most difficulty defining a way to evaluate cost, due to the number of variables that influence cost. The following considerations were noted:

- Cost must always be understood in relation to the online courseware's *true value,* which is a complex factor.
- There should be *multiple models* for determining the true cost for scaling, using perhaps empirical research and market factors.
- The overall *cost trajectory* of courseware for both user and developer should be considered, but it's hard to estimate (hardware, software, maintenance, etc)

Continuous improvement

A second theme key to scaling was the ability for courseware to adapt and incorporate user feedback into its development cycles. The group noted that:

- Building courseware is not about building the perfect course. The courseware must create an environment that allows educators and learners to *continuously improve* the practices of teaching and learning. The courseware should easily incorporate those new practices.
- The courseware should support the adaptation, sharing, and incremental improvements to quality resources. High quality courseware must *incorporate the experiences* of its

community, through students' results and teachers' specific instructional implementations.

Creating the conditions for scalability through teachers

The third major theme was the teacher's role in scalability. Creating the conditions to allow a teacher to become the local champion of courseware is viewed as essential to encouraging adoption. Creators of courseware can promote scalability through teachers by using the following design principles:

- Allow teachers to modify and share resources: For teachers to play an effective role in scaling high-quality courseware, they must have the ability to modify the content that developers or other teachers have created, so it can fit a wide range of learning contexts.
- Create a community of collaboration: To ensure that quality resources are scaled, teachers must be able to collaborate as a community of professionals, and share content with each other.
- Align with curriculum: Developers of online courseware must clearly identify how the resources fit into existing curricula, especially by pointing out the standards and outcomes that are taught and assessed.

Other themes

Several other themes emerged among the participants:

- *Interoperability:* Need to find ways to improve interoperability with online resources.
- *Testing:* Need to test teacher resources before implementing – only one chance to make a good first impression.
- *Equity and access*: The students who would benefit the most from this vision are those who are most at risk and the lack the reading, time management and study skills.

Challenges

The groups determined that there were two major gaps in the current environment that stand as the greatest barriers to better scaling of online courseware:

Standards to assist online courseware selection

Leaders and communities are making decisions regarding developing, purchasing and implementing online learning opportunities without clear, rigorous, vetted data, and information. This leads to potentially dangerous and wasteful outcomes.

To remedy this situation, there needs to be a means to provide better consumer education, so that those making policy and program decisions can easily understand and recognize quality. In addition, empirical research and market-driven assessments can assist the rating of online courseware.

The framework for a culture of collaboration

Online courseware programs must provide collaboration-enabling systems for the moderation, curation and dissemination of the best practices and iterations of the courseware. These systems should be integrated into the teachers' schedules and rhythms, so they can practice collaboration without excessive time and effort. Current examples of the "walled garden" ecosystem do not allow a culture of collaboration, and inhibit scaling.

Recommendations

Create an educational clearinghouse

The recommendation, therefore, is the creation of an *educational clearinghouse* of information that offers various types of expert and community data to assist informed decision-making, as well as the creation of community forums to encourage active participation in the selection, usage and improvement of online courseware. The education clearinghouse would both *curate information* about digital content (tools, curriculum, user practices) and *create settings for feedback loops* for members to share what they learn, enhance content and courseware, and interact with other community members. The goal would be to enable users and decision-makers to perform the following activities:

- Understand the product landscape.
- Share their learnings and experiences with other community members.
- Collaborate together to improve existing resources.
- Guide and influence adoption and decision-making.

The primary activities of the clearinghouse would be to provide the following services:

- *Share Data and Information:* In order to fulfill the recommendation, the education clearinghouse should focus on three major aspects of the information to be provided:
    - *Type of data:* The clearinghouse should provide reliable information about quality of online courseware products using:
        - Academic research.
        - Published analysis comparing products through rating and review systems or product comparison charts.
        - Teacher and student evaluations on ease of use and the learning experience.
    - *Registry:* The clearinghouse should create a registry that allows users to purchase, license or register what tools they are using, in order to facilitate the centralization of trend data for community consumption.
    - *Search:* The clearinghouse must create a strong interface that allows the ability to search and filter information in order to create meaningful and individualized queries.
- *Create community forums:* The clearinghouse must equally create a community forum that encourages and facilitates the evaluation, selection, improvement, sharing, and ownership of learning environments. The group recommends focusing on three elements of this community forum:

- All community members—including parents, children and teachers—should have the ability to participate in online discussions and potentially participate in the selection process of online courseware.
- The forum must manage the range of content it hosts, in order to allow both general and specialized users to successfully compare observations and experiences.
  The forum must provide the framework for a community of professionals to author and share content.

Summary and Conclusions

From among the broad variety of discussions and multiple workshops within the symposium, the following common themes emerged:

Open and flexible: The importance of collaboration and the sharing of content among groups with similar needs was a recurring theme. Participants regularly emphasized the need for open and public content that can be readily modified and adapted to local requirements. In addition, by creating platforms that promote interoperability and easy integration, significant advantages flow to the entire learning community.

Data and feedback: The working groups underscored that online learning environments should take far greater advantage of acquiring and redeploying captured data towards ends that will benefit the learner. Examples included communicating a sense of individual progress towards clearly articulated learning outcomes, regularly embedding assessments into content to offer feedback, offering customized learning pathways that are targeted towards a learner's specific profile, and using aggregate data towards continuous improvement of a tool.

Interactive or blended experiences: The advance of online learning environments over the past decade opens the opportunity for creating far greater and richer forms of interactive learning, rather than simply offering passive learning experiences. Working groups noted the advantages of creating blended learning experiences, which combined several different teaching and learning practices.

Respecting knowledge domains: The participants all made reference to the importance of an online learning environment respecting and aligning with the domain of knowledge that it is meant to teach. Groups underscored that the learning experience must come before the technology. The online teaching practices should promote the unique properties and real-world specificity of the particular domain being taught, rather than adopting a “one-size-fits-all” approach.

The role of teachers: The direct participation of teachers in any online learning innovation was viewed as an essential component of any tool's success. The teacher's needs should remain in the forefront of every design, in order to promote adoption and support curriculum needs. Equally, the evolving role of the teacher in relation to online learning environments, and the need for building new skills, should be supported and reinforced through training.

Appendix

Participants

Wendy Adams, University of Colorado
Liz Arney, Aspire Public Schools
Steve Arnold, Polaris Venture Partners
Marianne Bakia, SRI International
Sasha Barab, Arizona State
John W. Belcher, MIT
Phillip Bell, University of Washington
Scott Benson, Gates Foundation
Anita Berger, iSchool
Pam Birtolo, Florida Virtual School
Karen Brennan, MIT
Kevin Byers, Adams County School District 50
Grace Cannon, Philadelphia School District
Steve Carson, MIT; OCW
Kim Carter, Q.E.D. Foundation
Catherine Casserly, Creative Commons
Michelene Chi
Stacey Childress, Gates Foundation
Brian Christopher
Betsy Corcoran, EdSurge
Jonathan Cowan, KIPP
Cecilia d'Oliveira, MIT
Emily Dalton Smith, Gates Foundation
Cecilia David, Gates Foundation
George DeBoer, AAAS Project 2061
Chris Dede, Harvard
Ed Dierterle, Gates Foundation
Paula Don, Philadelphia School District
Barry Fishman, University of Michigan
Michelle Fox, U.S. Department of Energy
Susan Fuhrman, NAE; Teachers College
Jim Gee, Arizona State University
Melissa Giraud
Jennifer Gotto, Adams County School District 50
Dominic Griff
Paul Griff
Daniel Hastings, MIT
Neil Heffernan, Worcester Polytechnic Institute
Jessica Heppen, American Institutes for Research
Margaret Honey, New York Hall of Science
Bill Jerome, Carnegie Mellon
Neeru Khosla, CK-12 Foundation
Eric Klopfer, MIT
Mari Koerner, Arizona State University
Keith R. Krueger, CoSN
Vijay Kumar, MIT; OEIT
Yennie Lee, Gates Foundation
Mitch Leffler, Bellevue School District
Judy Leonard, MIT; OEIT
Chris Liang-Vergara, First Line Schools
Gary Lopez, Monterey Institute for Technology and Education
JoEllen Lynch, New York City DOE
Laird Malamed
Alexis Mentin, Asia Society
Brandon Muramatsu, MIT; OEIT
Amy Pace, Open High School of Utah
Andi Pascarella, McGraw-Hill
Susan Patrick, International Association for K-12 Online Learning (iNACOAL)
Vicki Phillips, Gates Foundation
Nichole Pinkard, DePaul University
David Pritchard, MIT
Rahim Rajan, Gates Foundation
Leslie Redd, Valve
David Rose, CAST
Adrian Sannier, Pearson eCollege
Bror Saxberg, Kaplan
Lisa Schuldt, Gates Foundation
David Shaffer, University of Wisconsin–Madison
Kay Shattuck, Quality Matters Program
Bret Shelton, Utah State University
Jim Shelton, U.S. Department of Education
Russ Shilling, DARPA
Val Shute, Florida State
Mike Smith, Harvard University
Constance Steinkuehler, OSTP
Kimberlee Thanos, Thanos Partners
DeLaina Tonks, Open High School of Utah
Robert Torres, Gates Foundation
Barbara Treacy, EDC
Adam Tucker, Gates Foundation
Kurt VanLehn, Arizona State University
Brian Waniewski, Institute of Play
Louise Waters, Leadership Public Schools
Arlene Winter
Jenna Winter
Esther Wojcicki, Google; Palo Alto High School
Carina Wong, Gates Foundation

Agenda

	January 24, 2012
7:00 a.m. – 8:30 a.m.	BREAKFAST
8:30 a.m. – 8:35 a.m.	Welcome *Daniel Hastings, MIT*
8:35 a.m. – 8:50 a.m.	Overview *Emily Dalton Smith, Gates Foundation,* *Vijay Kumar, MIT*
8:50 a.m. – 9:45 a.m.	Quality Courses: Immersive Gaming or Focused Tutoring *Jim Gee, Arizona State University* *Kurt VanLehn, Arizona State University* Moderator: *Eric Klopfer, MIT*
9:45 a.m. – 10:00 a.m.	BREAK
10:00 a.m. – 11:00 a.m.	Assessing Quality: Learner Analytics or Human Intuition *Bror Saxberg, Kaplan, Inc.* Moderator: *David Pritchard, MIT*
11:00 a.m. – 12:00 p.m.	Scaling Quality Across Multiple Dimensions *Cathy Casserly, Creative Commons* *Judy Codding, Pearson Foundation* *Chris Dede, Harvard University* Moderator: *Vijay Kumar, MIT*
12:00 p.m. – 1:00 p.m.	LUNCH
1:00 p.m. – 2:00 p.m.	The Practical Case for Quality: The Teacher and Student Perspective *Teacher: Dana Dyer, Aviation High School Teacher: Mitch Leffler, Sammamish High School Student: Dominic Griff, Sammamish High School Student: Royce Le, Aviation High School* *Student: Katie McConville, Aviation High School Student: Jenna Winter, Sammamish High School Graduate Student: Katie Van Horne, University of Washington* *Graduate Student: Paul Teske, University of Washington* Moderator: *Philip Bell, University of Washington*
2:00 p.m. – 2:30 p.m.	Summary and Workshop Plans *Kim Thanos*

2:30 p.m. – 5:30 p.m.	Workshop Group Meetings Theme One: Designing High-Quality Courses Workshop Leaders: *Cecilia d'Oliveira, MIT* *Robert Torres, Gates Foundation* Theme Two: Assessing Quality of Online Courses Workshop Leaders: *David Pritchard, MIT* *Ed Dierterle, Gates Foundation* Theme Three: Scaling High-Quality Online Learning Workshop Leaders: *Vijay Kumar, MIT* *Emily Dalton Smith, Gates Foundation*
6:00 p.m. – 8:00 p.m.	Reception at the MIT Museum
	January 25, 2012
7:30 a.m. – 8:30 a.m.	BREAKFAST
8:30 a.m. – 9:15 a.m.	The Opportunity and Challenge of Pervasive Quality *Jim Shelton, U.S. Department of Education*
9:15 a.m. – 9:30 a.m.	BREAK
9:30 a.m. – 11:00 a.m.	Workshop Group Meetings – Finish Memos and Posters
11:00 a.m. – 11:15 a.m.	BREAK
11:15 a.m. – 12:15 p.m.	Workshop Results Designing High-Quality Courses Assessing Quality of Online Courses Scaling High-Quality Online Learning
12:15 p.m. – 12:30 p.m.	Session Closing and Next Steps *Emily Dalton Smith, Gates Foundation* *Vijay Kumar, MIT*