

OPENING UP EDUCATION

FSPKR: Welcome. We're pleased that you've joined us today. Our speakers are the editors of the new book, *Opening Up Education*. Toru Iiyoshi, a senior scholar with the Carnegie Foundation, and Vijay Kumar, a senior associate dean and director of the Office of Educational Innovation and Technology at MIT. Also with us today is the author of the book's foreword, John Seely Brown. Toru and John are at the studios at Stanford University and Vijay is joining us from Cambridge. They're going to talk about emerging innovations and future possibilities for the open education movement and what educators should do to reinvent and reenergize education.

IYOSHI: Thank you for joining us today. I'm Toru Iiyoshi and I'd like to start this off by sharing the background and context of this work in the next four or five minutes. Over the last few decades, as you know, new media and information communication technology have enabled students, faculty members and educational institutions to advance teaching and learning in many ways. Today, with a growing number of openly available tools, educational tools, and resources, especially through the Internet, we are surrounded by a number of transformative opportunities for education. However, to date many innovators, innovative educational efforts, still remain in isolated and closed domains rarely shared across classrooms, disciplines, institutions and even regions. Therefore, educators find it very difficult to advance their pedagogical practice and knowledge as a community. The good news here is that the emerging open education movement is beginning to change the way we use, share and improve educational resources and knowledge by making them open and freely available. But despite the increasing interest in open education and the availability of these growing tools, collections of educational tools and resources, we risk missing the transformative and innovative opportunities. We must think really hard about how open education can help us improve teaching and learning in a small classroom as well as to create the necessary educational capacity for the entire world. As a global education community, we could benefit from a deep understanding of how open educational tools and resources are being created and used in ways that build upon each other's educational knowledge and practice. It is vital. We continue to explore possible synergies and sustainable strategies for all these current and future open education efforts and promote a culture of openness across boundaries and borders. That is exactly why my colleagues and I wanted to embark on this Carnegie Foundation book project two years ago. Then the open education movement has advanced far enough for us to articulate the visions and the conditions necessary for opening up education in ways that

can dramatically advance learning and teaching. So it is our hope, you know, with John and Vijay here, that the experience and wisdom captured in this volume, *Opening Up Education*, will help to make such visions and conditions tangible and move us forward. As a collection of thirty reflective and journalistic essays by 38 prominent leaders and thinkers in open education, this book explores the challenges, opportunities and potential synergies from the various efforts in the movement for enhancing educational quality and access. From the inception of this project our goal was to help engage these authors in the collective exercise of critical reflections on the open education movement. We started this exercise by presenting our authors with a framing question, which is: “how can we take full advantage of open educational technology content and knowledge to create opportunities to improve the quality of education?” and then we started further exploring of various dimensions in addressing this framing question. Finally, I’d like to stress that even though many of our authors are closely associated with various significant open education initiatives, this volume is neither collections of reports on open education projects, nor up-to-date summaries of their successes. Instead, the authors have shared their critical analysis and their reflections on the strategic underpinnings of their past and current open education efforts, exploring issues and possibilities and building upon their own and others’ experiences. They have delved into the implications and visions for future work in open education. Their perspectives, ideas and visions through their chapters are broad, diverse and of course very thought provoking. So this is all very exciting. Okay, my time is up here so John, let’s talk about where you think we are now today.

BROWN: Well, thanks, Toru. It’s great to be here. I’m very excited, as you know, about the book and it’s one of the reasons I look forward to actually writing the forward for this book, because I think that we are at a critical moment in the history of education and the ability to rethink education given the tools that we now have available. I mean, it’s very interesting to be sitting here with you and Vijay at MIT. You know, Vijay, I mean, we were together many, many, probably four decades ago when MIT kind of pioneered the Athena Project and I was at Bolt, Beranek & Newman. There was a sense that we could with those tools reinvent the way learning happened. You know, it’s now forty years later, I hate to say, and I think our dream is about to be realized. I think that we live in, first of all, extremely interesting times. You know, it is maybe passé to say but we’re living in a period of exponential change. That really means that we have to figure out a way to reconceive learning. Reconceive education so that not only are we learning faster in the classroom, outside of the classroom, and on the campus, but learning in a way that we continue to learn after campus because many of our skills won’t live for five or ten years after we’ve had them. Many of us

are going to go through two, three, four or five careers in our life. How do we actually pick up these new types of skills? This has as much to do with picking up the strategies of informal learning as well as formal learning, and I think that the beauty of kind of the whole open education movement is how do we learn both in class and outside of class. How do we continually learn new ways to do things and so on and so forth. It's so curious to me and so wonderful to see that since the openness of the way we learned how to do science is now making its way into the realm of learning. And MIT was one of the places, along with the Connections Project in Texas from my history, that kind of opened up the idea of how do we kind of bootstrap our own ability to build better and better and better material. Material that's more and more current. Material that actually brings the user in as kind of a full participant in kind of shaping that material and so on. And I think it's very nice that this book is not just a report of kind of the projects that are going on but the critical reflections. What have we learned after like ten years of this push in the open education starting with open courseware and connections, what can we now step back and realize what can we do better, what have we learned, what are the key lessons and so on. I think it's interesting to see how we can now start to transform not just the ability to have shared content, which is something that is kind of atypical if you remember even six or seven years ago in the education realm, but now saying hey, can we kind of look at this from a global point of view? How do we learn from each other as teachers, as professors, how do we actually bring students into this game to make the material better and better, how do we kind of improve that, but how do we actually learn ourselves more about being more effective at teaching? And I think, you know, Toru, one of the great things I've learned from you over the years is the ability to kind of accelerate using technology to learning communities amongst professors and amongst teachers. So not only do we want to find ways to bring content and spiral content up in terms of its quality, but we want to actually figure out how we can learn more effectively from each other. And if you realize that we're playing this out against the global scale now, we have the opportunity to learn so much from the students that are using this material, if we were to kind of think about this from a notion of kind of an open learning, participatory platform, where this notion of Web 2.0 comes to the forefront. I mean, if you wish, this book reflects the major shift from Web 1.0, a push notion of just push the material out there, to kind of a Web 2.0 in terms of how do we become more participatory, how do students learn from and with each other, how do students and faculty live together and then how do we make that richer than ever, how do we put like instruments online so that places that don't have the fanciest tools can actually run key experiments and so on. Now having said all that, it's not quite enough. I would like to think it was enough but let's go back to the early days. Let's

face it. All of us remember critical moments in our own learning where a teacher stepped in, a mentor stepped in, a coach stepped in at the critical moment and said, "Why did you say that?" or "did you ever think about it this way?" and so on and so forth. So I think now we've got to look at the fact that twenty years ago we tried to build intelligent tutoring systems, intelligent coaching systems, that if you had million dollar machines, as I used to have, you could put a million dollar machine working on one student and you could actually get something pretty interesting going. Today we have computers 10,000 times more powerful. We're now at the stage where we can actually take this open education material and we can also take this whole notion of intelligent tutoring and coaching and see how we bring these two worlds together. So how do we take this sense of kind of peer based learning, perhaps, augmented by some lecturing but then augmented by some kind of mentoring in terms of automated intelligent coaching, which I think you see beautifully being developed out of the Carnegie movements, etc., well described in this book. How do we kind of build a new collage of brand new kinds of constantly improving material, more and more powerful instruments that we can run experiments on and new ways to do visualization and so on and so forth, and then on top of that, a whole new approach to building mentoring systems that can kind of figure out those key moments to come in and help you when you get stuck. We're beginning to have the puzzle, the pieces of a brand new jigsaw puzzle that we're figuring out how to put together here. And I think if you look at this book, you find kind of reflections on each part of that but you also see the attempt to start to put these pieces together. And I think that we're going to find ways to construct a complete new type of learning tapestry by combining these pieces in terms of an ability to engage in perhaps peer based, augmented learning that will stay with us for life. And the practices that we're picking up now I think will actually provide students with the ability to constantly pick up new material. And I think it's the fact that you've got to realize that in today's world, if you can't feel comfortable embracing change, if you can't feel comfortable picking up new skills, if you don't understand the difference between knowledge and knowing where knowing is activity based, and if you actually think about this fundamental shift I think is happening and the revolution we're going through characterized in a lot of these chapters, is how do you move from this focus of homo sapien knowledge to the homo faber, that is, the maker of man, intelligent man or man as maker, in terms of how do you use tools as a new way to interact with each other, with material, with the world and to learn through those interactions. And that focuses more on knowing, not just knowledge. Knowledge maybe we can look up in Google. Knowing is something we have to kind of learn through these participatory environments that we're talking about today. So to me, that's why I find

this so exciting, is that in a curious way the explosion of digital technology still increasing this exponential path is driving change, change, change ever faster, which is creating a tremendous problem for the old ways of learning and teaching. But the same thing that's driving this challenge we have is also providing us the tools and mechanisms to attack these problems in fundamentally new ways. So let's hear from you, Vijay. I think you're kind of right in the middle of this stuff.

KUMAR: Indeed I am. Thank you, John, thank you, Toru. Toru has identified some of the motivations that led to this effort that led to the book and John, as always, has wonderfully pointed out the real promise and perhaps a generative potential of the whole open education movement, the fact that it offers the opportunity to continue to improve. I would like to just touch upon some of the opportunities and the implications of this work and the action that we hope it will lead to for all of us involved in education as teachers, researchers, practitioners, policymakers. A good place to start and which is quite relevant given where I am, is actually MIT's bold announcement of open courseware in 2001. And since then the course content of over 1800 courses have been published on the web and made available for free to the world. Alongside, there have been other initiatives. The iLAB initiative, for instance, which makes real labs accessible over the Internet to science and engineering education by greatly expanding the range of experiments that students can be exposed to in the course of their education. There has been the DSpace initiative, which creates an open source repository for education research materials and an initiative that I'm intimately familiar with, the Open Knowledge Initiative, OKI, which was geared towards developing an open architecture to support the development of portable applications, sustainable applications, that worked with campus infrastructures but which really offered choice when it came to educators to be able to pick up the kinds of applications that they'd like and be able to actually run them. And beyond these initiatives, of course, is a whole host of other open initiatives, some that John referred to like the Connexions Project, Carnegie-Mellon's project, many of the projects that other authors have written from and reflected upon. And all these point to the gathering storm of open education. And when you look at each of these initiatives, they point to a rich pallet of transformational possibilities. In fact, through this movement you see suddenly this abundance of content, of quality content. You also see an abundance of relationships, access to firsthand experiences, design that enables choice, new distributed communities which are actually self-created and self-organizing. When you look at them in total, you really see, we begin to see that it is really possible to radically alter both the economics and the ecology of education. I look at the movement and we see, you know, some of the sweet spots of opportunity. John

referred to this blending, the blending of the physical and the virtual, the blending of situated learning with online experiences, the blending of conventional pedagogy with what network learners and network communities bring in. We also look at opportunities for boundary-less education, and I'm not talking about traditional geopolitical boundaries, although that's important too, but boundaries that typically exist between disciplines. Well, suddenly now it's possible to construct thematic educational experiences much more easily in order to bring relevance. You can think about the merging of life science and engineering, you can think about curricula that are actually word problem based. So these are the kinds of promising opportunities, but what all these opportunities also point to is that there's clearly a need for a fresh perspective on how we think about resources and the relationships available to education. So traditional assumptions that we make, for instance, about scarcity with respect to the extent and type of resources available, scarcity of content, of contact, are suddenly challenged by this whole open education movement. Of course all this raises the issue of our readiness, our readiness as educational institutions, as educators, to take advantage of this opportunity and the need to be effective in this new ecology which blends technology and open education in very constructive ways. Our authors have surfaced a variety of these considerations related to readiness. They've articulated some of the important issues and suggestions for planners and practitioners. Based on all this, our hope is that the book actually launches a process that it becomes a vehicle for reflection, for discourse and for some very serious planning for a variety of us, for institutional leaders as they grapple with how to preserve and contextualize the value of technologically based education, something that we at MIT, for instance, worry about a lot. How do you change the production function, the mix of resource and spaces given the new clientele, given that there's this plethora of quality resources available out there? In cases of nations, as we start thinking about increased access to quality education and opportunity in the new knowledge economy, how do we start thinking as teachers to figure out, you know, how is our role, as John pointed out, as coaches, mentors, managers of educational resources, how does it need to change to take advantage, to leverage this new possibility, how does that role as advisors and mentors change? And then also we hope that this becomes a vehicle for policymakers to think about some of what the new norms for intellectual property need to be, how do you launch this governance, how do you address governance issues, considering that we're suddenly dealing with the distributed collective of producers and participants in this educational realm. So we hope that this book really starts fueling the discussion so that we can start not just preparing for these unintended consequences, but also start proactively constructing a preferred vision of the future. That is indeed our hope, that with the book, with the

recommendations that our authors have made, with the kinds of visions that John has laid out in his forward to the book and the specific recommendations that Toru and I have tried to identify.

IYOSHI: Thank you very much, Vijay, and thank you, John. So building on all these great ideas, we really hope by reading through all these wonderful, stimulating chapters in this book, we hope you can join this very exciting intellectual journey to find many possibilities and opportunities for open education. Thank you and thank you for joining us again.

FSPKR: In the spirit of open source, the Carnegie Foundation for the Advancement of Teaching and the MIT Press have made *Opening Up Education* available for free download from the MIT Press website, or it can be purchased in hard copy from the Press. And we invite you to join Toru, Vijay and John to continue the conversation on the Carnegie website at www.Carnegiefoundation.org.

[END OF RECORDING]