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Washington File

Professor Papert Discusses One Laptop Per Child Project

USINFO Webchat transcript, November 14

Seymour Papert, professor emeritus at the Massachusetts Institute of Technology's (MIT) Media Lab and adviser to the One Laptop Per Child project, answered questions about a device that may change education in developing countries in a November 14 USINFO Webchat.

Following is the transcript:

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Bureau of International Information Programs

USINFO Webchat Transcript

Digital Development: How the $100 Laptop Could Change Education

Guest: Seymour Papert

Date: November 14, 2006

Time: 9:30 a.m. EST (1430)

IIP Moderator: We'd like to welcome you to today's webchat on the One Laptop Per Child project, for which Dr. Seymour Papert is an advisor, and we'd like to thank Dr. Papert for joining us. You may begin posting questions for Dr. Papert at any time, and then join us between 9:30 a.m. and 10:30 a.m. EST on Tuesday, Nov. 14 to view his responses.

Seymour Papert: Today we'll be talking about an initiative to bring laptop computers to all the children in the whole world. People ask why, why is it that you want to give computers to children in many places where they hardly even have books.

The answer is, that you're asking the wrong question. If you think about people doing knowledge work, knowledge work means anything to do with writing, or numbers, or information, all the people in the world except children have opted to use the computer as the natural medium.

They have found this is the efficient way to do knowledge work. So, if we want to bring the children of the world into the knowledge economy, knowledge society, the computer is the only means of doing that.

QUESTION [MLS86]: If I live in a country where I want to have these laptops, how do I get them? Does my government have to buy them or can each school buy them?

A: For the moment only governments can buy them. Commercial channels to obtain the same or similar machines will be developed later.

Q [JACorrea]: I think I've read the laptop runs Linux. Have you considered making a version that runs Windows CE? Also, will this laptop need special software or can it run many of the same word processing, spreadsheet or other programs you can run on any other Linux system?

A: Re: "Have you considered making a version that runs Windows CE?"

ALL CHOICES WERE CAREFULLY CONSIDERED. Microsoft was offered the opportunity to make an operating system. But it had to be open source and they declined. Of course users are free to change the operating system

Re: "can it run many of the same word processing, spreadsheet...."

It will come with a good suite of this kind of thing.

Q [Yahya]: How do you intend to sustain the use of these Laptops in our higher institutions, due to the fact that we experience erratic power supply chronically?

A: Two responses to the problem of erratic power:

• Very low power consumption to operate longer on battery

• A human-powered generator (like wind-up radios) to supplement battery

Q [Martha]: This is a fantastic idea, but what about tech support? surely the computers--hardware or software-- might go haywire at some point.

A: I believe in "Kid Power." Our education systems underestimate kids. It INFANTALIZES them by assuming they are incompetent. An eight-year old is capable of doing 90% of tech support and a 12 year old 100%. And this is not exploiting the children: it is giving them a powerful learning experience.

IIP Moderator: We will be starting in a few minutes. As you can see, Dr. Papert had a chance to answer some of the early questions.

Q [Daniel Iglesias]: Which are the OLPC Project's plans about the educational use of the $100 Laptop? Will the $100 Laptop include educational software?

A: Of course this is a university, a universal computer connected to this Internet. So every sort of software that is considered to be educational will be available. But a deeper answer to the question is that the software that is really educational is not software made especially for children.

Web browser is an educational software because it let's people of any age get to information. Being able to computer the program, a simple programming language like LOGO or squeak, is educational software because it enables people of any age, including children, to get the experience of mastering the computer.

So my answer is that, yes, they will be the educational software that the real educational software is not what is made for schools, but is made for everybody.

Q [Charbax]: How will the One Server Per School work? Does that include a large hard disk drive that all students share to store their large files? Does that cache Internet downloaded content like video? Is Google making a $100 laptop version of the Google Video Player?

A: Yes, there will be a server in the school that will be able to catch a large amount of information. I don't know about Google.

Q [Talas Ordosu]: How much is that operating system is approximately going to cost?

A: It will come free as part of the computer.

Q [Bishkek_IRC I am Manas]: You answered that only governments can buy them, but why other official or organizations can not but them.

A: The reason why on the first round of these machines, only governments can buy them is this:

We have to make this operation as simple as possible, and so to get started, we can only deal with very large orders. We can't make enough for everybody at the same time. So the easiest way was to have governments that were willing to order a million of the machines at a time, have the first priority.

Q [Robert]: It's a great idea to change the education especially in the countries like Iraq of Afghanistan.

Q [Kuba]: I see that you mentioned that for now, only governments can by them. Please forgive my pessimism but many of the governments in the countries most in need of a tech boost are corrupt and can not be trusted.

What is to prevent these computers from reappearing in local markets or being misused by governments and corrupt officials? Are the safeguards?

A: We are doing our best to make computers available to all the children of the world. It's not in our power to control which governments are corrupt. There are safeguards. The machines are safeguarded in many ways against being stolen, but in the end, if the governments of the country are -- don't protect them, there nothing we can do. One protection against theft is that these computers will not look like any other computer. And because they are only sold to governments, if anybody has a stolen computer, it will be obvious to everybody watching.

Q [Talas Ordosu]: My question is basically is who pays for Internet itself in poor countries?

A: The computers will have local networking built into the computer so that all the computers in one town or village will talk to one another and communicate with the school, without going through the internet. So local communication will be free. Nobody will have to pay for it. Connection to the internet is something that is beyond our control.

A: I agree completely with Robert, and we believe giving computers to all the children in the world will reduce chaos and violence in the long run.

Q [Charbax]: Can the built-in camera be used for video conferencing and for children to make some films they can post on the Internet?

A: It can be used for video conferencing. Yes, children will be able to make movies that can be posted to other computers locally and on the net. yes,

Q [George Wilcox]: I work with the Ministry of Education in Thailand. Who would they need to contact in order to

place a large order?

A: The Thai government is already in negotiations with OLPC. I will be in Thailand on the, I think the first week in December, and maybe you want to send me an e-mail. Perhaps we could get together. I'll be there for four days. Please, Mr. Wilcox, send in your e-mail address and we'll make sure that we get in touch.

Q [davehat]: How closely does the OLPC concept mesh with your ideas about how children learn? Moreover, given the focus on child-centered learning, or "doing" - what is the role of the classroom and the teacher in an OLPC nation?

A: The OLPC concept measures with the idea that children can take charge of their own learning.

Making videos, communicating, creating their own programs, our children will take charge of knowledge. I believe that having the individual computers--each child owns a computer and has it all the time--is the only way we can empower really learner-centered learning.

The role of the teacher is to become a co-learner. Eventually, teachers, that is to say, adults with experience of learning will join with children in learning new materials that neither of them has known in the past.

And this is the best way to learn, to learn with somebody else who is already experienced.

Q [Talas Ordosu]: If you plan to provide laptops to the children of the world you need huge financial support, who is the sponsor?

A: The connection will be wireless. Each computer can receive and transmit wireless information. So all the computers within one area, suppose that there is always another computer within a kilometer of yours, all of these computers will be automatically connected by wireless. He asks about the financial support for giving laptops to children of the world.

I see two parts to the answer. One, the rich countries of the world ought to be providing laptops for every child in the world. Two, however, in any case, my vision is that a laptop computer will become so inexpensive, that every country will be able to afford to give them to the children.

We should be able to make them inexpensive enough so that what is already being spent on education will be the same kind of inexpensive enough so that it will be possible to provide computers within the budgets that are now being used for education.

Q [dc]: Many people focus on tech support, distribution, and the like. But this is a learning project. What do you think people can do to help really improve the learning environment for children who will receive laptops?

A: I hope that the connectivity will enable everybody in a community who has special knowledge, to make this available to children as part of their learning.

The connectivity of these computers and the fact that they will be in the homes of the children, will convert the whole community, whether it is a small village or big town, into a learning community.

I mean by that, that everybody who wants to can share knowledge and participate in helping other people learn.

Q [George Wilcox]: Who in the different governments would one contact to find out about who is getting these computers?

A: Ministry of Education should know. If you cannot get information there, send, post your e-mail and I'll try to get it for you.

Q [Jean2]: What plan does OLPC have for recycling these $100 PCs after they break or become obsolete? It bothers me to think of the literally millions of non-biodegradable plastic PCs and their toxic parts languishing in landfills, leeching into groundwater, being picked over by children. Thank you.

A: We're seriously worried about the environmental issues, but we cannot solve everything at once.

It is better to have computers out there in the hand of the children, than to sit and worry about how to solve the disposal problem before they go there.

Q [Talas Ordosu]: Are there any super protective screens that can provide excellent protection?

A: I don't think that protection for screens is necessary. There is no evidence that screens do any harm to users. And so there is no need for super protection.

Q [Charbax]: Could you please post some more videos of the device at [OLPC](#) we are eager to see how it looks, how it works, how the first reactions are and more. Videos on the Internet I think would be a great way for OLPC

can afford to give that free to its children. Whether they do or not is outside of our control.

Q [Charbax]: Are you also testing WiMax in the devices? Is WiMax mesh network possible? How much battery does mobile WiMax consume compared to WiFi?

A: The mesh networking is being highly tested. The computer uses much less battery-power than any other computer that exists for communications.

Q [Kuba]: This program looks to be another example of the "leap frog" effect of technology going beyond the conditions on the ground. With this in mind, does your project maintain contact with the international development community and NGOs so that time and resources are used most effectively?

It would be a waste to have NGOs promoting "black board" distribution when they could jump many years ahead and help to spread these computers.

A: I think this project is different from all the other large scale projects on bringing technology to the developing world. The reason is that the technology will be in the hands of children--in the hands of people who want to learn to use it for their own benefit. And I think that the cliché that big developmental projects don't work because people go beyond the conditions on the ground, does not apply here because children are the conditions on the ground. They want to learn, and they are the best learners who ever existed.

Q [Michael]: one thing younger children - and many adults - sometimes seem to struggle with is the QWERTY keyboard layout, will the new Laptop offer any alternative layouts e.g. ABCDE etc?

A: The keyboard will be QWERTY. Our experience is that when a child has the computer for all the waking hours of the day, mastering the keyboard is not a problem. It is only a problem when they have limited access to computers in classrooms, under the supervision of teachers. When it is their own machine and they are proud of and it they want to use it, they learn how to use it.

Q [Bishkek_IRC Manas]: Again, will there be any harm to the health of children (psychological develop) to use computers all day or everyday?

A: There is no evidence that there will be any harm.

Q [Talas Ordosu]: Are there going to be any people responsible for teaching?

A: Certainly the teachers in every country should be responsible for teaching. But taking the computers home means that the whole community can become responsible for teaching.

Q [Charbax]: How good is video playback supported on the first generation $100 laptop? Can it do DivX and DVD resolution playback?

A: How good is video play back. Well, it won't be as good as the best high quality screens that exist in the world. But it will be more than good enough for everything I ever do with a computer, and I think it will be more than good enough to be a great learning instrument for children.

Q [Talas Ordosu]: Will there be any moderators or any control because some children are weird and can turn education into entertainment (not learning but playing a game or watching porno)?

A: We envision 100 million laptops being in the hands of children in a few years' time. It is impossible for us to even think about moderating what all these children are doing. No doubt in each country and each community, some local action will be taken and that's the proper way for it to be done. I would like to make a correction to what I just said. The proper kind of moderator is the children themselves. The children themselves should be the control over the best use of the computers, and preventing what you call weirdness.

Q [Talas Ordosu]: Have you ever thought that you will be the concurrence for internet providers and cell phone companies?

A: Yes.

Q [Edward.Cuffy]: Could we have this program extended to Liberia where Bill Gates recently promised to build 15 computer learning centers all over Liberia for Liberian kids who now according to statistics have proven to be a good source of needed skilled people for the US economy. The Diversity Visa program has proven this and Liberians have proven their worth in the US.

A: We hope the Liberian government will join the OLPC approach. We hope that anything Bill Gates does will not be in competition. However, we do think that building 15 computer learning centers in the country will, of course, be very good, much better than nothing. But better still is for every child to have an individual computer.

Q [Michael]: [In addition to] Logo and squeak I believe some schools have experimented successfully with children programming Flash movies. Are there any plans for a Flash programming environment for the Laptop?

A: I believe that we can do much better than flash. We certainly will have software to enable everything that flash can do to be done with these computers.

Q [Charbax]: Can kids automatically download and install firmware and software upgrades?

A: Our principle is being open, open, open. Children should be able to download

anything and everything.

Q [Bishkek_IRC]: Is there age limit to use laptops, I mean from age should use computers? Manas.

A: I ask another question, is there any age to using books or pencils or paper?

The answer is obviously no. What is needed is developing suitable content and activities for younger ages, but there's no essential age limit.

Q [davehat]: What do you think of the call today by the National Council of Teachers of Mathmatic's for schools to

change their focus away from creative thinking and back to teaching basic skills.

A: NCTM has not yet understood the role of computers. NCTM still belongs to maybe the 20th century, if not long before. I think they call it totally wrong. I think that the reason why there is a conflict between creative thinking, and basic mathematics is that they try to do it with pencil and paper.

In a pencil and paper environment, it is very hard to be creative with mathematics. The great contribution of computers is that, it is now possible to use mathematical ideas to make things that kids care about. Making their own game. Making artwork. Turning mathematics through these activities into a useful tool for something that kids really care about.

This is the secret to mathematics education. NCTM is just blind because it assumes that mathematic will always be done pencil and paper. It does not understand that computers change the ballpark.

Q [wunschmm]: How will teachers and students be trained on using the laptop?

A: In the end, they will teach themselves. They'll teach one another. There are many millions, tens of millions of people in the world who bought computers and learned how to use them without anybody teaching them. I have confidence in kids' ability to learn.

Q [Larisa]: My 12-years son is rather skillful with computer and Internet. Let say, I've bought him the laptop. He wants to learn English (French, Russian any language) together with his friend whose family doesn't have a possibility to buy computer. What do you think is the way to start? They want my advice (in our country some children still consider parents as first and the best advisors :) How can I help them to do this more efficiently?

A: Larisa, find a computer somewhere, even an old one, even a slow one. Find a computer and let these children use it to get at software in different languages and especially to try to chat to other children in other languages.

Q [Bishkek_IRC]: If we work using your methods where we can get materials?

Daniar

A: Google [and] by the time the computers go out, we will have put in place sites to finding this material for learning. I am working very hard on this project. Today the quantity of learning material out on the Internet is immense. But what is missing is a guide to being able to find the best pieces that suit individual purposes. We are dealing with this problem.

IIP Moderator: Today's chat is the first of three in a new series "Digital Development." Please join us for the next chat "Digital Development: Free Speech, the Internet, and Cyber-Censorship". The chat takes place tomorrow, November 15 at 1530 GMT. Learn about our webchats.

Q [Talas Ordosu]: At the moment people steal someone else's ideas and technologies quickly. Have you ever thought about one problem - what if this program works and there is a demand, maybe someone decides to make good money providing poor quality laptops for 100 dollars?

A: If people steal the idea that computers can be inexpensive, we'll be deliriously happy.

It is not our goal to dominate the market. We want to see computers get out there. If people make poor computers, we have confidence that the children of the world will know how to judge and reject them.

Q [davehat]: to your mind, does learning to use a computer share much of the same process as a child uses in learning to learn?

A: I believe that school is an unnatural way for learning. I believe that natural learning is what happens before school and after school. But there are many things that can't be learned in the environment of the home. School became necessary because some things are not imbedded in the culture of our daily lives so children cannot learn them.

The computer greatly expands what is in the culture of the child's life. What the computer does is to make it possible for natural learning, which really means learning without teaching, without being taught, to be extended [exposed] to a much greater range of knowledge. I think we see when kids learn by themselves, to use the computer and to play very complex games, and overcome technical problems, we see them exercising the same natural learning abilities that enable them to learn to speak, learn to get around their parents, find the way around the house and find the way around the parents et cetera, all the stuff they learn outside of school. That's the natural learning.

I agree completely with Davehat's suggestion when they learn the computer, they are able to exercise that natural learning skill. But the conditions of school forces them to use more artificial ways of learning. So the big impact of putting out more computers under the control of children is to promote learning, learning. We will promote the learning of being a better learner, and that's the most important skill in a rapidly-changing world.

Once upon a time, schools could hope that children would go into the world, knowing how to do what they were taught. In a rapidly-changing world, they have to go out, knowing how to do what they were not taught that is to say, that to go out was the skill of learning to do work and deal with situations that have never existed before.

"Learning, learning" is the ultimate slogan for education of the future.

And I would like to thank you all for participating and giving me a wonderful set of questions to think about, and in about two weeks' time, I will post on the OLPC website, I'll post some deeper reflections on the very questions that have been asked here.

Thank you all.

IIP Moderator: We wish to thank Dr. Papert for joining today's webchat. The webchat is now closed. Please visit our USINFO Webchat Station where today's webchat transcript will be posted within one business day.

And please join us for the second chat in this series which will take place tomorrow.

(While guests are chosen for their expertise, the views expressed by the guests are their own and do not necessarily reflect those of the U.S. Department of State.)

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