Discussion

Technological Innovation and Life-Long Education
— The Present and Future of Distance Education —

Chairman: Moto-o Kaji
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Chairman: This is the last session of this international symposium. According to this program in Japanese, it is supposed to be the *Zadankai,* which means the discussion. The English title is the panel discussion. We have the five panelists in front of you. Therefore, we will be giving the opportunity to each of the speakers, although this could be a separate panel discussion, this time could also serve as the summarizing session of the entire symposium. Therefore, time allowing, I would like to invite all the other panelists or all the other speakers who have appeared previously to make themselves available to contribute to this discussion.

Though I have just said that this could be a summary session, the purpose of this international symposium was not to come to any single conclusion or identify any single direction in which we should pursue our activities. Since we have the participation of people with varied and different background and experiences, we are grateful to have received their views about the life-long education issue as well as distance education which for all of us is one major mission or task. To the extent we can learn from each other, I think this symposium has been successful and a great help to us.

So, using the remaining time I will be asking the panelist to state their impressions and their views, and then open the session to the floor for comments from the people in the audience as well as other speakers.

Incidentally, my name is Moto-o Kaji, Vice President of the University of the Air. I have been Vice President since May of this year. But the preparation for this symposium had begun even before May this year. Mr. Kobayashi, former Vice President, who was one of the speakers this morning, was very much involved in the preparation of this symposium. I must therefore acknowledge the efforts that were made by the committee headed by Mr. Kobayashi in preparing for this symposium. I came in only late, only providing some behind-the-scenes assistance. However since I am presently the Vice President, I have the honor of chairing this session.

Since we have five panelists, I was wondering in which order I should ask the

panelists to speak. However, I thought it will be best to give the speaking opportunity first to the participant who has not spoken up so far, and that is Mr. Hojo, President of Shinshu University. So he will be the first to speak.

Prof. Hojo has been President of Shinshu University since 1981. He has been teaching chemistry and in addition has been is instrumental in various new projects or activities that his university is engaged in.

N. Hojo: Thank you very much for giving me this opportunity to be the first to speak or to break the ice so to speak.

As was mentioned briefly by Mr. Kaji, we are presently trying to establish an image information network. There are many reasons for our coming to the decision to create such a network. As you may know, our university is very unique in that our organization is spread out throughout the prefecture in five different locations and our prefecture is very much mountainous. There have been efforts, therefore, in the past to bring the campuses together. However, the various locations are all deeply rooted in different localities and have close relationships with the local community. It has been difficult therefore to try to unify our organization. But today we are seeing a rapid development of inter-disciplinary academic fields. Furthermore, in the prefecture of Nagano, there is a plan to set up a technopolis. In fact there are five plans to build up technopolis at five different locations in Nagano. In the meantime we are seeing great sophistication and advancement of various disciplines in academia. Therefore, now we are hoping to be able to maintain the present structure of the university while creating a network to link and connect all of the different campuses. Since we are, as I said, a very much spread-out organization, we are trying to keep up with the times by connecting ourselves in a form of network. Hopefully we want to create a network which will make use of various technologies to allow us to have an image or picture information transmission through the network.

Tokyo Institute of Technology, as we heard, conducted an experiment connecting two campuses over a distance of 26 km. I think relatively it was easier for them because the similar system in our case would involve 200 km and the mountainous regions that have to be overcome. Very much money will have to be spent even if we ask NHK or NTT to come up with technology to make that available to us.

Since we are a national university the government will not be very forthcoming in providing us with the budget and furthermore we will need to ask the Ministry of post and Telecommunications to give us communications band allotment, so that we can use an appropriate communication band. This will require much time for preparation.

In our case we have studied — I have myself been involved in research and study in this respect for several years in the past. Finally after extensive preparation, in 1985

we came up with the decision to create this in two years' time. This created some controversy in the conditions that have to be met before we are given the communication frequency allotment. Therefore, I solicited the views of many experts and I compiled those views. On their behalf I was responsible in submitting the request for the frequency allocation by the Ministry of post and Telecommunications.

The fact that we made this announcement in 1985 was a rather drastic and bold step, but thankfully things have been moving rather smoothly. We are now connecting into our system the third campus, the one in Matsumoto. The distance there involves 70 km. Luckily in Nagano Prefecture there are some mountains whose altitude is some 2,000 kg so we can easily set up antennas on top of those mountainous plateaus. The University of the Air and Tokyo Institute of Technology have presented us their experiences this morning. It would have been better if I were prepared to give you similar reports accounting for what we have done. However, I have not prepared myself. To the extent that I heard this morning, I think the situation has been the same with us.

Students have already been involved in our project. The evaluation has been positive. Simply because something that does not exist came into existence anew, they were very impressed that is one thing. Undergraduate level students who are not yet majoring in subjects during the first and second years, they were very impressed by the system. So, once we made our start it turned out that our project was received very well by the students.

The classrooms, however, are still old classrooms, and we have added some 16 TV cameras, although the positions of the cameras are not necessarily optimum. Therefore, if you keep watching the TV screen you may develop a headache or a neckache or whatever. So we do have small problems.

Also the research part of the university activity is still confined in a small laboratories, we have an idea to incorporate them into our network.

Nagano as I said has a technopolis program. It also has a program to promote life-long education which is directed at people in general. There has to be well-trained instructors to provide such teaching to the general public. We have been taking part in the open seminars of the Institute for Multimedia Education for the last five years, which have been the opportunities for us to train and develop our own instructors.

Between Nagano and Matsumoto the connection has been in existence for one and a half years already. Unexpectedly or beyond our expectations the acceptance has been very good. As has been mentioned this morning, the evaluation may begin to go down as people become used to the new system.

TV conference has been used to some extent. As in the case of the Tokyo Institute of Technology example, it is the live two-way communication. Since we have 5

campuses within the prefecture, when this system is completed, this will connect five of the campuses all together, simultaneously, through the two-way video and audio network.

I am not an expert in this technological field, neither am I a specialist in education engineering. My field is chemistry. However, by using this network particularly at the graduate school level, we are attempting to provide a linkage between different disciplines, given the development in the field of academia in a very much interdisciplinary way.

One idea was how to convey experimental information in chemistry. I took part in this symposium when it was held for the first time and I was very impressed that some of the programs in the United States involved the Masters degree. I was interested to hear something about the delivery of chemistry information particularly in regard to experimental information in the United States. However, so far I have heard nothing of the situation in the United States.

What we are trying to do in terms of chemistry experiment is to be able to allow students to smell the experiments, the smell of the gas or allow them to feel the progress of the chemical reactions. With their sensory skills, students can experience chemical experiments. The biggest problem is how that can be done on a screen through an image.

Our topic today is life-long education and technological innovation. There needs to be, therefore, the technology innovation to allow us to have such a system that will allow the students to actually feel experiments with their senses.

In your handout there is a small suggestion that I would like to bring to you incorporating my ideas about how chemical reaction can be conveyed.

Simply letters or symbols cannot be used to convey information on the same screen that is used to depict the experiment in progress. If numbers are flashed somewhere, peoples minds tend to get concentrated on that information only. Therefore, they would neglect what is going on in the other part of the screen, neglecting the actual visual progress of the experiment. Therefore, what I am suggesting is to have some schematic representation of the chemical reaction in progress to allow students to see what is the degree of acidity, whether it is base or acid, whether the temperature is low or high, whether the pressure is low or high, whether it is an ester or an ether.

Depending on the color the concentration could be identified and by flashing these symbols people or students can know that that particular reaction is occurring at that particular point in time. Even if one were to accept this kind of proposal, if these were to be workable, these should not be accepted only in Japan but as a standard throughout the world if the chemical reaction were to be understood on screen by

everyone. In that case, I think we should be able to have means to convey these chemical reactions live and in a raw form, so that students can understand them.

One suggestion is that in a regular TV if you see somebody drinking coffee there may well be some indication on the screen of the sweetness and the temperature of the coffee that is being consumed. Of course, that is one idea. Whether that would lead to human happiness is another. Such information can be misused by somebody to the detriment of humankind.

There has been a suggestion to develop a TV with odor or smell. However, smell is a sense that remains with the human being often leaving not a very comfortable impression. So, there are very many problems that one has to address in the development of these information networks. That is the impression or question that I would like to leave on your mind.

Chairman: Thank you very much, Dr. Hojo.

As a means of supplementing the conventional means of education, I understand that you are now experimenting with new ideas. I think your work is in many ways related to the projects that were discussed by the panelists this morning. We would hope to have discussion on your subject. However, in the interest of time, we will have our discussions later all together after we will have heard from the other panelists.

We have foreign participants as well on the pane,three of them. We will be going by alphabetical order here. According to the order of ABC, Dr. keith Harry would be the first among the three foreign participants to speak. He was one of the speakers yesterday, so I hardly need to introduce him again except for just one word. He comes from the Great Britain. He is the Head of the International Centre for Distance Learning of the United Kingdom.

Dr. Harry, please.

K. Harry: Thank you very much, Mr. Chairman.

I would like, if I may, to concentrate upon the subtitle of todays discussion, even on a part of the subtitle, namely the future of distance education.

As you would expect from someone who collects a diversity of information from all parts of the world, what I am going to give you now is a diversity of thoughts. I would like to throw out some ideas, some of which have been discussed in the course of the meeting already. Some have simply been referred to, others have not been raised at all. And I would like to begin by talking about, if you like, my hopes and my predications as to what may happen in distance education, starting off with the area with which I am most familiar, which is information, speaking briefly about the two international organizations with which our Centre has a connection, i.e. the commonwealth of

Learning and the European Association of Distance Teaching Universities, and then saying a few things in general which don't relate to any other previous topics.

If I may start with my own topic, information, my hope for future years is that we will see the development of a series of documentation centers which undertake the same kind of work as our own center at present. I would very much like to see the development of an international network of documentation centers to make information accessible much more readily than it is now to people who are working in distance education, be they planners, researchers, academic staff, administrator, whatever their role. I believe, as you would expect, that information is particularly important. It is an area which has been talked about a good deal and into which very little cash has been put until now.

There was some possibility that the Commonwealth of Learning could sponsor or encourage the development of some regional centers which would have a documentation or information function. I think that is not very likely to happen in the immediate future. There is a problem I think with the establishment of regional centers. It is in many areas a political problem. For example, if a regional center is to be established to serve Latin America, which country do you base it in? If you wish to establish a regional center in the Indian subcontinent, which country do you choose? However, I believe that there will be the series of centers established possibly on a national or an institutional basis rather than a regional basis.

And I foresee the development of certain technological innovations which are in use to some degree now. We have had the opportunity to use on-line data bases for many years. I foresee their development continuing but at the same time paralleled, perhaps even replaced by the use of a newer technology CD-ROM. It will be very interesting to see what effect the compact disc has on the future of on-line data bases.

My hope is that the additional documentation centers which are established will each be able to contribute to a central catalogue of information on the literature of distance education. And I hope also that there will be cooperation on the collection of information on institutions and courses in distance education.

Additional technologies which I foresee being extraordinarily useful in the information field are electronic mail for informal communication and computer conferencing to enable people to contribute information to specific topic in which they have particular interest and to pick up information which other people have contributed.

I think we are reaching a point now where it is possible to produce a good bibliography or a list of documents on particular aspects of distance education, which we can send to any point in the world. This is useful but if you are someone in a developing country, a list of references is probably hardly worth the paper if it is

written on, if you cannot obtain the documents to which your references refer. I believe that a future activity is the development of some kind of document delivery system which enables the supply of documents as well as information to institutions not only in developing countries. I think we have an information explosion but we also have a problem whereby documents are printed often in relatively small numbers. They go out of print very quickly and become totally unavailable.

That is my own personal interest. And forgive me if I have dwelt on it rather over long. Let me go on to speak briefly about the Commonwealth of Learning.

The major overall aim, I would say, of the Commonwealth of Learning is to improve opportunities for students and potential students in developing countries. The idea of transfer and of adaptation of courses is currently being discussed. Until now the experience of institutions transferring and adapting courses is that these are very difficult processes and I would foresee that it is more likely that the Commonwealth of Learning will be involved in developing course materials in new areas, development of new course materials rather than transfer and adaptation, I suspect. And one of the major reasons I think is the reason which Prof. Oberle mentioned this morning, the not-invented-here syndrome, the reluctance of staff and institutions to teach using materials which have been produced in other institutions.

I think the Commonwealth of Learning will provide more training opportunities and will encourage staff exchanges which I would foresee as an encouraging development.

Within Europe and I dont really propose to say much about the European Association, but mentioning Europe there has been a brief reference to what happens in 1992 when the single European market is in place. I will just mention two implications. One is that European institutions will be able to enroll students from other European Community countries. I believe, but I am not completely certain, that it would be illegal for institutions not to enroll students from other countries. And the implications are just enormous. I believe the implications for the Open University in the United Kingdom are particularly serious, because many people in European countries outside the U.K. speak English, whereas certainly not many people in the U.k. are particularly fluent in other European languages. So I think the implications of the enrollment question are very considerable.

There will also be the possibility of offering courses Europe-wide. In fact some courses are already offered throughout Europe by an organization called Europace which uses satellite technology and video. The Olympus satellite is offering a free channel for education programming. And there is a committee which has been established to plan the courses and other materials which will be offered. This offers tremendous opportunities especially in the areas of business studies and science and

technology perhas particularly computer technology, involving the private sector as well as the public sector.

There is a little Open University experience here already in that the university is hoping to use some of its time allocation to broadcast some science and technology updating programs. However, it has already run into problems with copyright. The materials which have been incorporated in the TV programs obtained from other institutions or from other sources, a third party material, have not been cleared in the original courses for Europe-wide distribution. It has only been cleared for use in the U.K. So, there is a reason implication because this will cost a good deal of money to extend the copyright to cover Europe.

It is also my hope that the European communitys programs which relate to distance and open learning may assume some more coherence than they possess at the present time. There are, it seems to me, many people in many European institutions who are spending their whole working life completing proposal forms for grants from the European Community. And a tremendous amount of time is being wasted. I hope that this will change. I think this is a vain hope. I am sure it will never change.

As far as the rest of the world or the world generally is concerned, I foresee the development of several more big national distance teaching institutions, particularly in Bangladesh and Tanzania, where committees have been set up to investigate the establishment of such institutions. I believe that in the bigger distance teaching institutions continuing education including vocational courses and training courses will assume greater and greater importance. I also believe that many more small distance teaching projects and programs will arise and that many of them will be combined more and more closely with face to face teaching. I believe that the theory of convergence which has been expressed quite frequently of late is one which will be reflected in the experience of many institutions.

One European development which I foresee happening more and more frequently is the production by distance teaching institutions of packs which can be used independently, self-standing packs which are comprised of printed text and video cassettes or audio cassettes. These packs may be used by individuals to study or they may be used for group study. There does appear to be considerable demand for this kind of material and there is a considerable need by most institutions to actually earn more revenue. This is one way in which I think this will happen.

Two more thoughts finally, which are on topics which are really not being raised at this seminar and probably they are not with in the limits of the seminar.

One is developing countries. I mentioned developing countries earlier on. Our Centre has received money recently from the British Governments Overseas Development Administration to provide support to the Commonwealth of Learning.

The principal benefit of the funding is intended to be for developing countries. I will simply make the point that developing countries are likely to continue to struggle. I feel that they are in many cases very little closer to being able to use high technology than they were ten years ago.

The final point I would like to mention is the possibilities which exist within distance teaching institutions for disadvantaged groups. There are disadvantaged groups which must rely upon distance teaching institutions since they may find, if they have for example physical disabilities, attendance at conventional universities very difficult. And this is a subject which has not been raised at the present seminar and perhaps should at least be deserving of a mention.

These are a series of rather rambling thoughts and I hope that there may be some topics there which will be discussed at a later stage, and I would like to conclude there, Mr. Chairman.

Chairman: Thank you very much, Prof. Harry.

Prof. Harry has listed many topics for our future considerations as well. At the end of his comments Prof. Harry mentioned the role to be played by distance education for the people in disadvantaged positions or the disabled people, and so forth. President of the University Prof. Koda yesterday explained our university but because of the time constraint did not go into details. There are quite a few disabled students in our university and the percentage of the disabled students to the total enrollment is much higher than other ordinary universities. To that extent, we have already been playing some role, but it is obviously something we should be directing more attention to from now on.

Now, if I may, I should like to invite Prof. Morrison to speak. Prof. Morrison gave us a keynote speech yesterday and does not need any introduction. So I would like to call upon Dr. Morrison right away.

T.R. Morrison: Thank you, Mr. Chairman.

I will make my remarks brief, so that we can put into practice hopefully here our discussions of the interactive capabilities of modern technology.

Briefly what I would like to do though, if I can, is to formally thank the co-hosts of the conference, the Institute for Multi-media Education and the University of the Air. The Conference has been exceedingly well organized. It is a product of a lot of hard work, and I want to personally thank both organizations for all the work in putting on what has turned to be an absolutely superb conference, which I think will make a major impact not only in the development of both institutions but more particularly, in terms of distance education. So, I would like to thank all of those who have been

involved in the conference, and it has been my pleasure to be invited.

I will just try, if I can, to give you my thoughts as I have listened to different people speaking abut the question of life-long learning and distance education and couch them to some extent in directions that I feel we are going to move in collectively.

The first point I would make is that this conference confirms the view that I have always had, which means of course everyone is tremendously wise. And that is that there is no such thing as one model of distance education, or open learning in the world, nor should there be. There has been a tendency in this field, particularly if I can refer to what Dr. Harry was saying, particularly in the developing world at the outset to seek to model an institution. I have had that experience and I have seen a bit of that in India and to some extent in Thailand. Certainly I have seen bits of it in China. I imagine in the case of Japan, when you were in the planning stages of the university, the initial inclination might have been to look for an existing model. I know at Athabasca University some people were strongly influenced by the work of the British Open University. And the British Open University carries a particular cross in this field. Since they were the first, they tend to be the place where most people visit, not because they are promoting their model but they tend to be the place that people visit.

What I am pleased to see is that most countries in the world are in fact developing models which have some generic characteristics but are quite different. They differ according to the cultural circumstances and what is available in terms of delivery. the case in point would be the example of Japan.

What has struck me as the major difference between the Japanese approach to distance education and what you would see in Canada, for example, is the extensive use of broadcast television. You use broadcast television, I would assume, in part because you have such a tremendous development of broadcast television right across Japan. One thing that strikes me in Tokyo is the number of microwave towers that I see. Now, we have in Canada nationwide broadcasting but nowhere near the kind of infrastructure that Japan has. On the other hand, in Canada, from the technological point of view, we have a very good telephone system. So, if you come to our Athabasca University you are going to see a lot of use of the telephone system. Some use of broadcast television but nowhere near as much as you would use in Japan.

Each country also has different technological capabilities and different cultural factors that have to be accounted for no matter what system is developed. I think, what we are going to see, — and it is a good thing — increasing over time are a host of different models of distance education around the world from which we will all be able to learn. So, I think we are to the point of maturity where we no longer have to search for one model that will govern the entire world. I think that era is over and what we are going to see is diversity and with that we will see a lot of creative development. I have

been impressed with what I have seen already in terms of the development in the University of the Air and the National Institute for Multimedia Education. So that is the first impression I have.

The second is that in the future it seems to me generally, — and I think this came across very clearly in this mornings presentation — the approach to education problems will not be solved on using institutional response, if I can use that phrase. In other words, if you take the developing world again — but it is also the case in the so-called developed world — we have problems of scale. How do you educate large numbers of people? Not only initially but in an ongoing basis. It is the problem of mass education to some extent. Well, in previous periods of time we were able to use an institutional response. How do you do it? You build educational institutions, so you will find in Canada and the United States — United States perhaps more so than in Canada — universities and community colleges as institutions spread all over the country. In Canada we have that to some extent. And you see that in other parts of the world. That era is over.

The new response in my view will be the response to networks. It will be a networking response rather than an institutional response. You have an example or at least 3 or 4 living examples of that what the network response can look like. The National Telecommunications is an organization, is a networked response. I think as well the Chico case that comes out of the conventional institution, it is a network; it is a networked response. And the University of the Air, as I see it, you are going to put in place, using the University of the Air as the base, really higher education learning network across Japan. You are not going to build institutions; you are not going to replicate the University of the air building right across Japan. The reason for that is : a) costs no one can afford, b) the technology allows us to do it today. And it leads to an interesting kind of challenge and from my perspective, from our policy perspective, that all nations of the world today are going to have to do two things simultaneously. They are going to have to develop their national higher education systems as national higher education systems. However, they are going to have to, if I can use a phrase from the computing world — those systems are going to have to have an open architecture. They are going to have to link with pan-national learning networks at the same time. A good example of that came from the private sector today in the discussion of the next stage in the development of NEC training internal training system, which is in fact therefore NEC but is going to be within the NEC environment a global, pan-national, really pan-national learning network. So, all nations have to do two things: To build a strong and national higher education system but with an open architecture, so one can link to other systems that have been put in place with the same kind of open architecture. That is going to be a tremendously exciting kind of development and one

in which we have very few rules to guide us. In my view, it perhaps marks the second major stage in the development of educational systems in the 20th century. I think that will be the form, the structure for education of the 21st century. The living and breeding examples of it are around the world today. So, that will be my second point, which is that currently and in the future, states or nations will be looking for a networked as opposed to institutional solution to the educational challenges and problems that they face.

The third point I would make goes to some extent to my colleague from Australia. I am not going to debate him whether the television are to exist or not. My point would be that what we see now is somewhat different. Television will no longer be a stand-alone media, nor computers, nor radio. One of the fundamental things that is occurring in technology, whether one likes it or whether one doesnt like it, is that it is all being integrated. So you are going to be able to not only see the television but you are going to be able to interact by a computer based mechanisms that are part of it. You are going to be able to access data in a variety of different ways to CD ROMS and other kinds of things. So, what we are talking about occurring is a multi-and integrated media context not just for education but in our world generally. That is what we are going to see. Now the educational potential in that environment is quite significant. It is still only a potential because what is happening is that the people inventing the technology are too far ahead of educational thought. And there is a danger and I would echo that there is a danger if new educational concepts are not developed and that in fact we would have to develop those educational concepts within a technological fence. On the other hand, the challenge for educators —this is where I perhaps differ — is not to point the finger at the people developing the technology and argue that they should either slow down or stop. The challenge for educators is to come forward and work with people developing this technology at the beginning, not once it is finished. We wait till everything is done and then we look at it and try to figure out how we might use it. We have got to get ourselves involved in the actual design of the new media if are going to use it.

One area that is happening actually is in the area of cognitive science, artificial intelligence and that area. There you will find the linguists and cognitive scientists and others working with people on the hard side, the so-called engineering. In any event, it is a multi-media and integrated media context in my view. We are going to have to simultaneously be able to do things that we have never been able to do before. The question is: as always with educators, what is it that we want to do? What is it we want to do? exactly what is it we want to do? Because the technology is there. In fact it allows us to do almost anything we want to do. Our problem is, I think, that as we look to the 21st century we are not sure exactly what it is that we want to do. That is our

question. That is not the problem for the engineers. That is ours. We are to answer it or the technology will answer it for us.

The 4th point I would make is that if I look at distance education systems particularly, how I see them at this point in the development is that they do provide what I call the transition devices toward the new society. I think our societies all around the globe are changing fundamentally. Where distance education comes in, it is almost like a bridge with these large scale systems: it can almost function as a bridge from the major helping societies that learn about change. That is what I was intrigued withlistening to different people talk about the kinds of programs, the types of things that are being put on the distance education and open learning systems. The content, what kinds of things are we putting in? I am interested to see in the Japanese context not only at the University of the Air, — I had the opportunity to visit NHK earlier in the week — it was interesting to see the kinds of things that are being put on these large learning highways. And it would seem to me, that raises another interesting issue where we need to debate, because we can become infatuated with the technology. It is an electronic highway. That is all. The question is: what do you want to put on it? And what basis of judgment would you use? One basis for me is: what kind of society are you moving toward, what kind of society do you want? And if there is a gap between where you think you are moving and the kind of society you want, then we had better spend some time — all of us — putting some things on these networks that will allow people to interpret that kind of change and bring about the kind of society that they would like. Now, we have large crisis in the world; we have a major world, global, ecological crisis. No one can escape that. You cannot retreat from that, no matter where you live on the globe. Well, perhaps we are to raise questions and enlarge in distance open learning systems. There is an obligation to inform the populace. This is an opportunity to, in fact, inform the world given the scale of these systems about these kinds of issues. I appreciated listening, for example, to the brief discussion yesterday of the basis of the earthquake in San Francisco. Now, that is something that I would bet right now that half the people in the United States would appreciate hearing about. Because they are all probably checking bridges and everything right now. That is my point on the idea of social change.

There are just two or three other points quickly. I think we are at the point and we will see it in the next decade, in which the idea of globalization of learning becomes a reality. I think what you are going to see is a networking amongst larger and smaller distance and open learning systems. I think you are going to see joint course development across national boundaries, and you are going to see courses developed by 3 or 4 different institutions and 3 or 4 different countries, offered simultaneously for credit in all of those countries. I think you are going to see that. I think it is going to be a

tremendous development and the cultural learning that will come as a consequence of that will be fantastic. What will make that happen will in fact be the technology of communications that we have. Without it it is very hard. I mean air travel can be fun but it is also expensive and it is not really as timely as it might be. I think we are going to see the true possibility of the globalization of learning and I think that has a lot of very interesting possibilities.

The last point I would make is that in all of this in the distance education, open learning systems, life-long learning, in all of that, the need is very important to keep human learning at the core of whatever it is that we do. You can become so infatuated with either lifelong learning or with new pieces of technology and hardware that you forget that the core and enduring focus of what we do has to be human learning. My own sense is, though, that we are about to see some rather dramatic things occur, that is, by virtue of the technology and by virtue of the softside of that, the software development and the new models of intelligence that are being developed, by virtue of that I think we are about to see the early stages of development of entirely different conceptions of learning itself, entirely different conceptions of learning and human possibility, and that more than a computer will really challenge how we conceive the educational process. that is going to bring on a fundamental challenge abut what our own concept of human potential is, and we had not had a challenge of that nature in centuries.

So thank you.

Chairman: Thank you very much, Dr. Morrison. Yesterday, Mr. Morrison set a very important basic tone for our symposium, and I am very impressed that Dr. Morrison set again a tone of our future symposium and what we should be thinking from now on.

As the third speaker, among our foreign guests, I would like to call upon Dr. Nimpanich from Thailan, STOU. Prof. Nimpanich is the Dean of the School of Political Science of Sukhothai Thammathirat Open University. Please.

J. Nimpanich: Thank you for your kindness.

Before my discussion I have a few words to say. I extremely agree with Dr. Morrison in saying that this symposium is well organized and everyone concerning this worked very hard. I think everything here is systematic. One thing I am very impressed is the team work or team spirit. The symposium makes me understand the meaning of team work or the team spirit deeply. This make, me undoubtedly understand why Japanese developed faster than any other country in this century.

I would like to thank everyone for being very kind to me, making me feel at home.

In my discussion of this topic, "Technological Innovation and Life-Long Education,

the present and future of distance education", I shall raise STOU as the case by dividing my discussion in three main parts.

The first part I want to discuss is the present situation of STOU in using technological innovation and their results of being successful or not. In case of being successful or rather successful. Are there any problems or obstacles? If there are, do these problems affect the present status of distance education of STOU?

Then, in the second part I will discuss: Has STOU found the way to solve the problems? If STOU can find the ways, what are the new technological innovations that STOU should try to develop? And does this affect the future distance education of STOU? If in fact it does have an affect, in what direction?

And the third part, in conclusion, I will try to generalize the present and future of distance education from the case of STOU.

STOU, as I told you yesterday, holds the principle of lifelong education, aims at improving the quality of life of the general public, seeks to increase the educational qualifications of working people, and tries to expand educational opportunities for secondary school graduates in response to the needs of individual and society. To fulfill these goals, STOU established a distance teaching system which uses the following technological innovation to import instructions. The main media is such as correspondence textbooks, workbooks and supporting media such as radio and television broadcast and audio visual aids. In case of main media, STOU sends all instructional materials to the students as soon as they register. In the part of the supporting media, radio and television, I don't want to mention them again, because I told you yesterday, so let me talk about audio visual aids.

For audio visual aids, this refers to tutorial cassette tapes, tutorial video tapes. These are produced for the subjects which do not offer tutorials. To evaluate the use of these technological innovation or mixed media, in 1986 STOU did research projects on "Occupational Benefits of Open University Education". It was a joint research on distance education between International Development Research Council of Canada and STOU. The result of the study in the part of opinions of distance learning system from these 7,230 graduates and certificate graduates who completed their education in the academic years 1982 and 1983. The research finding on the opinion distance learning system based on answers to questions concerning those technological innovations and general views on the distance education as follow. In case of the printed material or textbooks, the majority of the students studied printed material independently from the moment they received them. The study was done according to the stage laid down in the printed materials. In case of radio and television broadcasting this research findings showed that the same results as done by the System Management and Media Research section of STOU that I told you yesterday. In

the case of audio visual media — this refers to cassette tapes —research findings showed that all students listened to the cassette tapes and felt them the most beneficial, and most of the students listened to all broadcasting which concerned their course of studies. And, last, when the students were asked how they study under distance learning system, most of the graduates replied that they received the best results while studying by themselves and they also replied that studying under the distance learning system was the same as studying under the conventional system in universities everywhere.

The results of the study were one of the indicators to show that the distance teaching system in the present situation of STOU that embraces the principle of life long education and uses the present technological innovation is rather successful. Even though the use of the present technologies is rather successful according to the research, some technological innovations such as broadcasting, as Dr. Moore had said in his paper* that on the arrival of radio and television in the first half of this century it was seen as supporting the communication between teacher and student, but its introduction into education frequently failed to correct one-way information flow characteristic of mass media. In other words in Dr. Moor's opinion he thought that broadcasting's only one-way communication and it separate between the teacher and the student then this becomes one of the obstacles or limitations of STOU. But this doesn't affect much as the present of distance of education of STOU because the number of the student each year are still high. However, the university attempts to develop the new technological innovation to help the students study by themselves, more efficiently in the form of two-way communication. As a matter of fact STOU for example have tutorial sessions which are in two-way communication, but only 20% of the students attend the session.

Then, what are the ways for STOU to solve this problem? This will be answered in the second part. Because of the limitations of especially the broadcasting that is only one way communication, then STOU have to find the way to solve this problem and at the same time the way they can also help to reduce the separation between the instructor or teacher and students. At last we found the way and one of one of the them is to use computers as a gateway to provide interactive learning for students through prepared instructional messages. And that is CAI or computer assisted instruction. By the assistance of the University of Guelph, Canada this is a pilot project of STOU which has produced 45 test modulates in three course blocks or three subjects. The first is Science and Society, the second is Economics and Business,

* G.A.B. Moorr, (Chairman, Rural Extension Studies, University of Guelphylunada) "Computes Mediated
    Communication An Energe Resource For Distance Education and Independent Study"

Statistics, and the third is Mathematics for Social Science. These are the difficult subjects. Now, STOU is testing with the students in three study centers. STOU hopes CAI will help the students study by themselves more actively and successfully.

After knowing the experimenting result of the use of CAI STOU will install or set it at the study centers scattered all over the country. Then, the students who have registered those difficult subjects, are able to use it. In addition to developing CAI for the students, STOU is also developing the use of telephone tutoring by hoping that it will help the student also.

In the future, if STOU can develop these new technological innovations, both CAI and telephone tutoring successfully, this will certainly affect the future of distance education of STOU in a good direction. I mean these new technological innovations will help the students and the public in general to believe that education is an essential factor in human existence, and also that education is a process and a chain of activities in which man is involved through his life those students will have more confidence in the STOU system, and this will make the future of distance education in the case of STOU assume a more important roles in Thai society.

On the third part, in conclusion, even though I raise the case of STOU I think I may generalize that, if every open university all over the world which holds the principle of lifelong education will try to improve and develop the technological innovations that are beneficial both to the students and the public in general, I then we'll make technological innovation contribute to enabling, development and empowering of student's learning as Dr. Morrison said yesterday. And by changing these technological innovations little by little because some technological innovations were expensive as Dr. Meuter said this morning, and being aware of using some technological innovations such as television as Prof. John Henningham said yesterday, and by using it properly as Keith Harry presented yesterday, I believe that the future of distance education will assume a more and more important role in the society. I don't worry about the present situation of distance education because most people are beginning to accept this system, and you can see the success of the University of the Air of Mr. Koda and other open universities as well. I think many researchers from National Institute of Multimedia Education can confirm this success.

Thank you to all of you again for listening to my discussion. Thank you.

Chairman: Thank you very much. At this time I would like to invite Prof. Kato to speak.

H. Kato: Thank you very much.

I would like to take this opportunity to express our thanks certainly to overseas

guests and speakers but also Japanese attendants who have taken their time to attend this symposium today.

I would like speak about four items.

First, I would like to tell you something about the theme, Technological Innovation and Life-Long Education, the relationship between the two. As many people may know, the terminology life-long education or continuing education was first used by UNESCO in 1972 if I remember correctly. And somebody referred to that expression for the first time in 1972 in UNESCO and in Japan in 1981 the Central Educational Study Council made a report entitled "Life-Long Education". In 1981 this report was produced by the Council, and on this basis an ad hoc committee was established to study the possibility of educational reform, which continued its activities until last year. In the 1981 report there was a rather clear distinction between the life-long education and life-long learning as two distinct concepts. I won't cite the sentences which distinguished one from the other, but if I try to summarize this distinction or these two concepts it would so something like this.

Every human being wants to continue learning throughout his or her life. And it is life-long education which offers opportunities for everyone who has that longing for learning to satisfy that need. Every educator has to offer that opportunity. So life-long education offers that opportunity to life-long learners. It is a kind of service offered to learners.

I understand President, Mr. Saito, must know much more about this concept. So when we discuss life-long education I think it necessary to talk about these two aspects.

Through technological innovation life-long education has become something available to everybody and there is an example of Shinshu University, and in Hokkaido, Hokkaido University, and there is another example of Ryukyu University in Okinawa. We have 13 national universities or state universities using broadcast and delivering programs through broadcast technology. Thanks to the availability of free usage of the broadcast system and technology and thanks to this availability, both those elderly persons and housewives as well as hospitalized persons can benefit from these opportunities given to them.

Another link between technological innovation and life-long education has something to do with the necessity to have life-long education. Because of the increasing demand for life-long education, technological innovation followed that necessity. Until March last year I was in the faculty of the University of the Air, and in total 37 local authorities or local communities asked me to lend them tapes used in our university. Because of the copyright issue I could not respond favorably to those demands and I still cannot respond favorably to their demand because of the same

copyright issue. The technological innovation is certainly needed because many local authorities do and companies private companies do want to offer life-long education chances to various people.

Next, I would like to touch upon the two-way communication which enables feedback on the part of the receivers of the education. One-way image and two-way sound can be one possibility. There can be several combinations. One-way video, two-way audio, etc. You may not like this expression. However, between the educators and the learners there is this situation of demand and supply. I hesitate to bring about this analogy in the presence of Prof. Kichi, an economist, but there must be a certain demand on the part of the potential student or students who would like to see certain type of courses programmed and offered to them. So this can be considered as a demand. As someone who provides this opportunity there is a university, a university with various curriculum that supplies students with those programs and curriculum.

As far as I see the situation not only in Japan but throughout the world, now that the life-long education system or education is now facing a new phase, the market with its own demand and supply is not yet mature, the structure as such is not mature. We don't know yet what are the subjects that are most demanded by the students. Basically the professors on the part of the university's authority do decide on what subjects are to be included in the curriculum and in some cases several centuries have seen and in other cases several tens of years have seen many types of curriculum and programs which have been the same and unchanged. However, on the part of the demand side, they might want to have new products instead of old, long standing, existing products.

It is important for us to provide education and instruction using new technology. Yet, it is also important to match the demand coming from the students and interactiveness is also necessary in this specific field between the students and the university authority. So, this has something to do with the market relationship.

The third aspect that I would like to refer to has something to do with the presentation we have heard about NEC by Mr. Kamata from NEC. Various companies throughout the world are eager to train their employees on the job training or other types of training. They want to give their employees chances to improve themselves. And I would like to introduce some figures. In Japan, money invested by Japanese companies for training is three times as large as the Japanese government budget for the national universities, allocated for national universities. An example was shown in regard to NEC which has educational and training activities and programs not only in Japan but outside Japan using satellite communication. This has given us a lot of lessons using satellite channels. Training employees can contribute to the increase and enhancement of productivity which in turn will bring about further technological

innovations. So, this contributes ultimately to the increase of GNP. This is one aspect.

There is another aspect, however, which is not that tangible, and that we should not forget. There is other type of demand on the part of the students. I understand Prof. Morrison has said something to the extent that the investment increased by 12% in the field of information, but GNP increased only by 2%. Investment in information technology does include, of course, investment for educational purposes. The average age of students at our University of the Air is 40. 40 year old students do get a degree, that does sometimes leads them to a better chance for a better job. However, it does not necessarily lead to better position in their respective work. Their motivation is for them to be better versed with a lot of new knowledge. So it does not lead to the increase of GNP or it doesn't lead to the improvement of their social status.

Some words about the developing countries. Of course, Japan is also a developing country as far as this specific aspect is concerned. I understand that a better access to education and training in the field of technology are the areas where an emphasis is put in many developing countries. compared with that, in Japan TV programs broadcasting have a nature of public service. I said one time that education can be interpreted as something which is very much like welfare. That was a slip of the tongue. I was thinking of the elderly persons who don't have anything else to do but to try to learn something more through TV programs. I was thinking of those elderly persons who don't have anything else to do. If our programs can help them better enjoy their life, I though it was a good thing. On the basis of this consideration I said something to the extent that education is one type of welfare so it can come under the jurisdiction of the Ministry of Health and Welfare instead of Ministry of Education, I wouldn't go further than that.

Cost effectiveness and higher education — I don't think there will be much link referred to between the two in the future.

The fourth point I would like to share with you is the following. During the past ten years, there was certain reference to the division of the world into the information rich people and information poor people or countries. On the one hand there are series of countries where there is a lot of information and technologies to have access to information, whereas in other countries where 2/3 of the world population live, people don't have access to information nor do they have technological means. Another way of looking at the same situation can be expressed in the following way. The opportunity rich countries and opportunity poor countries. Information rich countries are not necessarily countries which are opportunity rich. Prof. Henningham in his presentation said something to that extent, that it is dangerous to use television channels for educational and instructional purposes. That was a provocative remark which gave us a lot of hits. You can have many channels. At one channel you have a drama and at

another you have a baseball game, another channel gives you professional wrestling game, etc. Whenever you have a chance to TV watch, the only thing that you can watch is not something very meaningful. That is something I would call opportunity poor. So information rich countries are not necessarily opportunity rich countries. Information rich countries are very often opportunity poor and that is the case in Japan. Information rich and opportunity poor. It would be nice if we can have a country where people are information rich and opportunity rich at the same time.

Well, I have been trained very well at my University of the Air, so I would like to keep my time, limiting myself to 15 minutes. 30 seconds more? So I think I'd better conclude my presentation. Thank you.

Chairman: Thank you very much, Prof. Kato. This room is used as a studio for production of programs, and Prof. Kato is accustomed to following the Director's instructions. As many of you know, Prof. Kato's specialty is sociology. Some sociologists say very incisive and at times shocking things. Incidentally President Koda is also a sociologist. He happens to be the president, so he is an educator or the specialist in pedagogy. But Prof. Kato is a researcher scholar, so he is more free to talk. Thank you for your excision of use.

With the very good cooperation of the panelists we have kept the time and we have about 30 minutes available. We would like to active exchanges of views among panelists. And I am sure there may be questions to each other. At this point I should like to open the discussion to the floor and invite questions or comments from the audience. Anyone? Yes, please.

Y. Hirose: I am studying the broadcasting opportunity for disabled people's education in NIME. My name is Hirose. I was very much interested in what the panelists told us. As Prof. kato mentioned, we are information rich but opportunity poor in Japan. I cannot help but agreeing with that. I have to emphasize that especially the disabled people are the ones who are suffering from the opportunity poor situation. Prof. Harry pointed to the significance of the open university or distance education to benefit the disabled people. The fact that it is open to those people and the fact that the people are willing to come in to receive services are different. So, I hope Prof. Harry will further expand on the kind of services which would cater to the needs of the disabled in the best possible way through the means of distance education or open university.

Chairman: Prof. Harry, please.

K. Harry: Certainly, yes.

There are certain arrangements which are made at the Open University in the United Kingdom for disabled students, as I guess there are in quite a number of other institutions. I wouldn't say that the Open University arrangements are particularly exceptional but just to indicate what does happen.

There are somewhere over 2,000 students with disabilities of various kinds who are enrolled in Open University courses. There are more students who are disabled enrolled with the Open University than in all the other universities put together, which is not really surprising because it is obviously extremely difficult for some people to pursue their studies in the conventional university setting. There is an office which deals specifically with disabled students. There are a lot of course materials which are available in audio form which normally appear in printed form. What has happened is that volunteers have actually taped printed course materials; they have read the materials into the audio cassettes. And they are available for the students. The Institute of Educational Technology within the University has a couple of people who are particularly involved with students with disabilities, and they have undertaken some development work. They have developed some hardware which is specifically for hearing impaired students and some for vision impaired students. There is an annual visit which a number of students are able to make, who are on one of the fine arts courses. Again, it is a volunteer operation. Students are actually taken to continental Europe and I think there is a ratio of one student to one volunteer. Those are obviously some of the more mobile students.

The other thing which I can think of is that there has been a course produced in the University which is aimed at the people who work with disabled people on a day to day basis, not to work with them necessarily but who actually are caring for disabled people on a day to day basis.

Chairman: Thank you very much. I wonder if this answered your question?

Y. Hirose: Thank you for your explanation. I would like to introduce some figures. In the open university disabled students account for 3.5% in the undergraduate and in the total university 3.3%. In Japan, in ordinary universities disabled students are like 0.4% and in the University of the Air 1%. Those are some of the statistics.

Chairman: Thank you. Prof. Tada.

H. Tada: My name is Tada from National Institute of Multimedia Education. I would like to ask this question to Dr. Morrison and Prof. Nimpanich.

The overall topic of this symposium is technological innovation and life-long

education. We have been discussing new technology, new media and their relationship with distance education. We learned much from various presentations. My question is slightly away from the main topic and rather a rudimentary question. My question is, listening to various views since yesterday, I noticed that there was one point not being referred to the teaching materials in the printed form and the printed media in the distance education and their relationship with the broadcasting educational program. The reason why I raise this point is that I thought what Prof. Henningham mentioned was very provocative. And as Prof. Kato mentioned Prof. Henningham presented a very incisive view from a different point of view. I more or less specialize in the printed media and printed educational materials. I was very much impressed by what Prof. Henningham mentioned. Prof. Henningham mentioned that TV by definition has an entertainment factor in it and it may be detrimental for the educational purposes, whereas traditionally printed media was used in the educational context. And the significance of printed media in the educational context has not been fully elucidated as yet. Why is it that we will have to jump to the audio visual media? I think that was his point. In the educational context we, of course, should be looking into the significance and relevance of the broadcasting program in the educational context and Prof. Henningham cited Allen Bloom. I really to a large extent agree with what he said. The contents of education or the knowledge in learning in higher education so far have to a large extent been constructed by printed media and words. In academic pursuits such learning has been accumulated. The rapid progress in the printing technology or printed media textbooks or teaching materials play, a major role nowadays. So in order to convey the systematized knowledge in an accurate way the best possible means I think is still the printed media. Pace and speed of learning is I think dependent or attuned to the printed media.

We could say the same thing about distance education as well. In the open university, the role to be played by printed media in the overall learning is very important. And the role played by TV media, I understand, is less than 10%. In case of German institutions or South Korea or STOU of Thailand, the printed teaching materials or media are the mainstreams of the teaching materials as we understand it.

Printed media is in the form of printing, so it does not convey visual or audio image or sense, but to convey abstract or logical thinking the printed media should not be overlooked. Its importance should be duly regarded. With the tremendous development of new media in educational engineering, much has been introduced and much has been improved. But when we go back to the very basis and foundation of education, I still think the very basis would be learning through printed media. So the broadcasting TV or radio are here to supplement such learning. That I think would be a more orthodox approach.

In Athabasca University or STOU, what would be the positioning or significance of printed media an how are they related to the broadcast media in your educational context? I would appreciate your comments.

Chairman: First then I will ask our panelist and then I will ask Mr. Henningham to make brief comments.

J. Nimpanich: In case of STOU, as you know, we use mixed media. The important media or main media we use such as correspondence, textbooks, workbooks, radio and television broadcast handbook. And the supporting media we use radio and television broadcast, including broadcasting of video tapes and course material recorded on audio cassette tapes. We have tutoring and counseling sessions at every lower regional study centers throughout the country. The main reason that STOU think the main media should be text because this media can help the students study by themselves efficient while others media still have same problem such as TV broadcasting is some limitation because in some areas the students cannot receive the signal, but in the future STOU will try to see the importance of supporting medias such as TV and Radio in tutoring and counseling.

Chairman: Would you like to say something?

T.R. Morrison: I would make three points.

The first point, that the basis of education historically is not print. It is the voice, not print. It is talking. That is the basis in Japanese culture and in our culture. So that those who argue the television is destroying the foundation of learning, need to reread history. Point 1.

Point 2 is that in most distance education institutions prints is still the foundation of what is transmitted at this point in time. I don't think there is any debate about it. Even computer assisted learning, it is print based. It just comes on a television screen. Now, you can do things in a computer assisted learning program that you cannot do by turning the pages of a book. Absolutely. A book can't branch to remedial lessons instantaneously when you make a mistake; it cannot do it. Or it will take you years and the book will have to be that big. So there are some things that computers can do in the manipulation of print that a book cannot. But most is still print based. However, there is a view — I happen to share this view — there is a view in science today and it is based on the concept of multiple representation of knowledge. That is the notion that you can have a given body of knowledge but it can be represented in different ways, and in fact you learn different concepts, different ways through different mediums. If that is true, I

happen to think that you learn to play a piano differently than you learn logical thinking through print. It is a different experience; different medium is required. If that is the case, then newer media that can enlarge the ways in which you can represent knowledge and enhance and enlarge knowledge have an important role to play. I see it in that dimension. The key question is whether, say, television in its current stage of development, has in fact fully exploited itself as a medium from a learning potential. I think there is a tremendous potential in the television, but if all you are seeing in TV is a talking head, you don't necessarily need a television for that. You can listen to it on a voice basis unless you really want to see the response of the person that you ask the question to.

By and large those are my comments. Most systems are still print based. In the future in my view the print will still be there. However, there will be other modes of representing and creating knowledge there. And those are being developed right now. We have got to pay attention to those.

Chairman: Thank you very much. Dr. Harry, do you have any words to add?

K. Harry: I would go along with what Dr. Morrison said. I would agree with him.

Chairman: Now, Dr. Henningham, do you have anything to add to the previous comments?

J. Henningham: I thought that was a very relevant comment of Prof. Morrison's about the basis of teaching being in the form of the voice. Of course, traditionally bodies of knowledge have been kept in written form, except in those societies that do not have a written language and they must depend upon extended stories passed in oral form from one generation to another such as we find in Hawaii. However, the extent of the body of knowledge which can be kept by that means is limited compared to that which can be kept by means of the written word. Of course, with a variety of technologies we do have the means to store knowledge with a variety of ways and different kinds of knowledge such as the knowledge how to play a piano. And I think that is very true.

I want to pass on an interesting discussion that I had with Prof. Nasu, who yesterday was so helpful for us in understanding earthquakes. He pointed out an experiment he had undertaken comparing the performance of students who used only textbooks versus students who used textbooks plus television in an open university course. He pointed out that his textbook contained all the information necessary for the students to pass the course. However, when comparing the performance of students who depended only on the textbook with students who depended on the

textbook and also used television, those students who used the textbook plus TV did better in their exams than the students who used the textbook only. He presented various hypotheses for this. I agree that such a factor as motivation may well account for this, the fact that such students are more interested in studies and put more time into it plus the repetitive factor as well. But I think it would be interesting to see an experiment of two types of students totally separated from other medium, where one group look only at textbooks and the other only at television and to compare their respective performance. I suspect that those who had only the textbooks would do rather better than those who only had the television. That is an experiment perhaps that the Hoso Daigaku could do in the future.

Chairman: Yes, please.

T.R. Morrison: I would just like to comment. I think that would be a fantastic experiment. My question would be in relation to what would the test be based, what skill would we be talking about? If you said to me let's have that test, I'd say let's do it, because there are some skills that you can't learn through print, but through television you could. So, that depends on what the test would be about.

Chairman: Mr. Abrioux.

D.Abrioux: Dominique Abrew (?) from Athabasca University. I have been very interested by the symposium. I found it very stimulating for two reasons. On the one hand it has introduced some new ideas for me personally and on the other hand has shown what the current state internationally is of distance education. I would like just to mention briefly three issues which I think have not been summarized in this session, but for me are important.

One is that as educators we must constantly remind ourselves that life-long learning must better address the kind of learner that is involved in life-long learning. We have to take into account much more for whom we are preparing the material. For example, there is all the discussion about television, about traditional teaching, lecture teaching. Now, personally I have reservations about lecture based teaching for adolescents, whether in a classroom or whether it is broadcast. Those reservations are even stronger in dealing with adults, and even stronger again when we hear about a classroom session being broadcast to a different kind of audience in a remote location. I think those are the issues which in the future we should be looking at the kind of learners, whether the learner's need are different.

The second one is one which is sometimes difficult for the educators to face... That

is, I believe that we should be addressing the failures of technology in distance education as much as the succersses. Perhaps it is inevitable that we hear a great deal about the successes of technological innovation and life-long learning and distance education. However, personally I believe we could learn, whether as much or less I am not sure, but we could certainly learn a great deal from hearing about some of the failures. I personally have had experience in one which I won't recount, but there was two-way audio, one-way video teaching of French to beginners which was a complete disaster. I won't bore you with details, but I think that those types of experiments are important, even through research is not published about them. And symposia tend not to emphasize them.

The third one is the concern that I have which is that distance education institutions, autonomous ones such as my own, such as the University of the Air, are engaging in too much television. We are putting too many eggs in one basket. When we hear about and read about innovation in distance education, my perspective or my conclusion is that it is business, and that the traditional universities are doing all the interesting experimentation in distance education. Now I can hypothesize as to why that happens. I believe that there are a couple of reasons. One is that we build an infrastructure, in my case, in case of Athabasca University Printing Presses; in the case of the University of the Air perhaps broadcasting; and it makes it very hard for experimentation innovation to occur. The other one which is perhaps more important is that we — I was going to use the word burden but that is not quite correct — we expect a great deal of our faculty in the teaching. We are committed to expanding education to people who do not have access to it and so the primary role of our faculty is teaching, and that is in developing courses which leaves very little time for experimentation and for research. And I think those are two challenges which distance education institutions in particular are going to have to face in the future.

Chairman: Thank you very much. I think I saw another hand earlier. Prof. Higashi?

Higashi: I have a very simple question regarding the future of distance university education. Thanks to technological innovation and institutions of distance university education, it is true that more people than ever are receiving education at the university level. But I am very naively wondering what should be the extent to which a nation should be college educated. When would or should people concerned with distance education be satisfied regarding the extent to which university distance education is spread across the nation? Perhaps Presidnt Morrison might care to answer this question, because he has one such institution. I would like whoever answers this question to be using one of the quantitative terms like every person should

receive it, as many persons as possible should receive it, or more than a half of the nation should receive it, or one qurter of the nation should receive it.

Chairman: Would you care to answer? Perhaps Kato-Sensei would like to.

T.R. Morrison: That is a typical question from a linguist. *(Laughter)*

I would not escape the question but rephrase it in this sense. The issue in my personal view which I would also argue should be the view of any society which is concerned about the development of itself as a society and individuals within it. Principle in my view is this, that the opportunity for accessing higher education including universities should be available to any person who desires that opportunity and who can benefit from it. And it is the obligation of a society to provide for that and to remove those barriers which stand in the way of realizing that. If that means in a given society that that number is 100%, so be it. That is the number.

H. Kato: The question is beyond my ability to respond. Maybe toward the end of the 21st century the question that was just posed by Prof. Higashi will change into the question whether what percentage of the nation should obtain a Ph.D., 100%, 25%, or 1/3. Thinking back what was the situation like in Japan one century ago, the question was to what extent the nation should allow the people to go to the high school or junior high school education level, 20% of children would go up to the junior high, the university ecucation was very expensive, very much exhorted dream for anybody 100 years ago.

One magazine in Japan is going to have a special article about the issue of education in the age of mass. I do not know what they will be suggesting in the magazine, but there is this trend. There is always a question that the no one is different whether it is junior high school or college degree or undergraduate degree or Ph.D., depending on the time. However the 21st century I think it is going to be the Ph.D. It is just my hunch: I have no grounds for my saying this.

Chairman: It is almost time for us to conclude but if there is one more question, perhaps we can extend. Just one more question. Yes, please.

(Floor): Yes, one last question. With regard to Dr. Kato's words that companies are competitor to us with regard to the distance education. As one example, NHK was the first to introduce correspondence education using broadcasting. Large companies in Japan wanted to use NHK facilities for the purposes of employee training. In the case of the Open University of the United Kingdom, I believe that at least in the earlier stages,

it was teachers who took those courses. So, the teachers wanted to improve their own teaching skills as well as maybe wishing to see higher remunerations, higher salaries. This means of education of open university was used I understand in the United Kingdom by many teachers. We can say teachers comprise one industry. In the case of Japan private companies used the NHK services in the beginning. Even though in some respects we are competitors, in many respects we can cooperate with the private sector, I believe.

Chairman: Thank you very much.

Kita: Can you give me 30 seconds? The National Universities of Japan have a committee to study the use of radio. And they have a group or a committee comprising the deans of engineering departments. In those discussions they said the largest competitors for the national universities of Japan were companies. However, companies are the ones who know what the business situation in real life is. Therefore, there will be the biggest life in terms of business of creation of things which in turn relate to the creation of people.
I just wanted to make this comment.

Y. Fukui: This is exactly time for us to be concluding our symposium, I would like to thank the panelists for your cooperation.
I believe there is a message. Vice President Obi who was supposed to be here to deliver his closing remarks, has asked me to say the concluding remarks on his behalf.
I would like to thank you for your very active participation in the heated discussion for the past two days. Being involved in the activities of the National Institute of Multimedia Education, I have been able to learn a great deal from the discussions so far. We have been able to use a lot of what we have learned.
Personally, and this is related to what was mentioned by Dr. Kato, I don't think companies will be our competitors. Because NEC provided a language training course, but they have no Shakespeare in it. We are thinking about human development. Be it Shakespeare or La Seine, we are involved in education of that nature. Private sectors are perhaps neglecting that kind of education or maybe relaying on the university education for literally academic teaching.
I think in terms of the funding of the university activities, I think we can work together.
This was just a personal complaint of somebody who was very much interested in little studies, particularly French literature.
I hope the programs can be developed to enhance the level of understanding of

those studies. In so doing, we would be no doubt holding another and more of these symposia and therefore I would like to take this opportunity to ask for your future participation in our symposiums in the times to come.

With that I thank you for your attention.