



Central Asia:

Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan

ICT USE IN EDUCATION

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INTRODUCTION

The five central Asian republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan share a common history and face similar problems in developing and reforming their educational systems. All were formerly within the Soviet Union, attained their independence suddenly in 1991 as a result of the breakup of the Union and are now members of the Commonwealth of Independent States (CIS). Despite many differences between them, it is convenient to look at them as a group. Basic data are set out in Table 1.

Table 1: Basic data on on the five republics

	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
Population (millions) 2002	14.9	5.0	6.4	5.8	24.4
GNI per capita (USD) 2001	\$1,350	\$280	\$180	\$950	\$550
Area (thousands km ²)	2,717	199	143	488	447
Population density: people per km ²	6	25	44	10	59
Net enrolment ratio - primary education 2000	88.7	82.5	102.6	n/a	99.6
Gross enrolment ratio – primary education 1999-2000	96.2	101.6	104.6	n/a	n/a
Gross enrolment ratio – secondary education 1999– 2000	87.0	83.0	76.0	n/a	n/a
Phone subscriber per 100 people 2002	15.7	8.8	3.9	8.2	6.9
Internet hosts 2002	16,562	5,930	302	2,020	213
Internet users per 10,000 people 2002	93	298	5	17	109
PCs per 100 people 2002	n/a	1.3	n/a	n/a	n/a

Source: World Bank; EFA Global monitoring report; ITU statistics; ADB statistics.

These are landlocked countries, dominated by deserts and mountains, and with low densities of population. Economically, the five countries were part of the single Soviet system so that economic planning and decision-making was based on their role within that system. The resulting economic policy might just be defended within a command economy of a colossal state like the Soviet Union, but it was quite unfit to the needs of newly emerging states. Just one illustration is the over-emphasis placed on cotton cultivation, which had a severe environmental impact. There were some bizarre results of the state economy as well: Kazakhstan, for example, was left with a cosmodrome from the heyday of the Soviet space programme.

The development of new economic policies, with implications for education, was complicated by tensions within the region, reaching the level of civil war in Tajikistan, and by the high levels of emigration, especially of middle-class, well-educated Russians, the so-called *pieds rouges*.

In working through the period of post-Soviet transition, all five countries have had to respond to similar pressures. As one Russian commentator argues:

The all-union “mechanism” was fundamentally different from a self-regulated market economic system, which in this context may be described as an “organism.” The naively criminal attempt to transform the “mechanism” into an “organism” in one stroke by the universal total implantation of a totally new economic system made the destruction of the [former Soviet] united space unavoidable, resulting in economic catastrophe in the CIS countries. The most serious effects were felt not in Russia but in the weaker parts of the “mechanism,” the Central Asian states.¹

Independence thus meant that the new countries had to establish new economic structures and look for new economic links and trading partners, while at the same time seeking to establish their national identity and culture. Economics, culture, history and religion all had potential roles to play in transformation. For practical reasons, Central Asia soon began again to look to Russia; for reasons of history, language and culture countries they looked to Iran and Turkey; for religious reasons they looked to the rich Islamic states to the south; and as part of the move away from communism they looked to the West. Uzbekistan, for example, established new links with Turkey, Vietnam, India, France and the United States and succeeded in establishing

joint economic projects with China and, in principle, with Pakistan. Perhaps as significant, after earlier disputes, it re-established economic links with Russia.²

This reaching out may have begun a process of economic change to match the political transformation, but it has had limited short-term success. The CIS has proved a weak organisation and does not have the capacity to promote major economic change or co-operation. “The cousins of the Central Asian people in Turkey and Iran proved too weak economically to serve as locomotives of development, the brethren-in-faith in the rich Arab countries were in no hurry to share their wealth with remote northern relatives, and the West and the Asian tigers preferred to invest only in lucrative enterprises such as mining, metallurgy, telecommunications and car assembly plants.”³

One part of the solution to the region’s economic problems may lie in co-operation within the region, leaving politicians with the demanding task of promoting at one and the same time regional co-operation and a new national identity. But there are no simple answers to questions about the culture, the politics and the economics which the education system should serve, or about the framework within which educational decisions are to be taken. Decisions about language, for example, are fundamental to education and reflect the complexities of the region. Kazakh, as one illustration, was originally written in Arabic script which was replaced by a modified form of the Roman alphabet in 1930, only to switch to Cyrillic 10 years later. Kazakhstan is reported to have switched again, back to the Latin alphabet, but has applied this policy unevenly. “The difficulties experienced in establishing new alphabets may be seen as metaphors for the obstacles that pave the way for Central Asia as it attempts to define its new position, resolutely modern and freed from the constraints of the old Russian tutelage.”⁴

It is not surprising that poverty dominates. The *Economist* reports how the whole region got poorer after the collapse of the Soviet Union. More than 80 per cent of the population fall below the official poverty line in Tajikistan and 17 per cent live on less than US\$ 1 a day. The proportion of poor people in Kyrgyzstan hovers around 50 per cent. In Kazakhstan as a whole, nearly 25 per cent of the population are below the poverty line, while on the shores of the Caspian Sea the figure rises to 95 per cent.⁵

Despite all that they have in common, the differences between the countries are striking. Kazakhstan, the richest country in the region, is huge, the fourth-largest country within Eurasia, exceeded in area only by Russia, China and India. Much of it is semi-arid steppe but with important industrial areas in the northeast, where industry was most easily integrated with the rest of the Soviet Union. It has reserves of oil and natural gas, which made up over a quarter of GDP in 2001. Kazakhstan is described as multi-ethnic, with Kazakhs forming a plurality but not a majority of the population.

Kyrgyzstan and Tajikistan are smaller and poorer mountainous countries with limited mineral resources. Agriculture is still a dominant feature of the economy in Kyrgyzstan while Tajikistan was the least industrialised of the Soviet republics. Both countries export labour to Russia and Kazakhstan. They have high levels of debt and dependence on foreign aid. Tajikistan is still recovering from its civil war with a reported 100,000 dead and 700,000 homeless.

Turkmenistan is dominated by desert, with a small population and a low density of population. Its oil and gas reserves make it relatively wealthy within the region. Like Kazakhstan it has a relatively high rate of urbanisation. In Uzbekistan, in contrast, the primary sector is dominated by the rural population and only 38 per cent of the population is urbanised. It is self-sufficient in natural gas, has some mineral reserves and a significant industrial sector.

The five countries’ Soviet inheritance means that all have a well-established educational system with high levels of literacy and high enrolment ratios at all levels. Central Asian education benefited both from an ideological commitment to raise the standard of education and from the relatively high proportion of GNP spent on education in the Soviet period.

Upon independence, the countries responded in a similar way in restructuring education. All of them reduced the length of compulsory education from 11 to nine years, allowed private education, sought to use local languages as the medium of instruction and began introducing fees, particularly for higher education. All also tried, with varying success, to decentralise educational decision-making, although in some cases this policy was rapidly reversed.⁶ The countries now share a similar educational structure with 10 years of schooling organised in a 3 + 5 + 2 structure with a three-year primary cycle, followed by a five-year junior-secondary cycle and a two-year upper-secondary cycle, sometimes provided in a number of different types of school. Uzbekistan is now moving to 12 years of compulsory education, with the final three years either academic or professional.

The figures show that there have been declines in enrolment at most levels of education since transition. UNICEF comments, for example, that the situation in Kyrgyzstan “appears particularly alarming, with significant falls apparently taking place in enrolment rates at the primary level, as well as at lower-secondary level. Taking both levels together, the data appear to show that about one in seven children of compulsory age are not enrolled in school in several countries in Central Asia.”⁷ And a conclusion drawn by International Institute for Educational Planning (IIEP) eight years ago still seems to hold true: “Social demand for education, which was previously guaranteed by the state and satisfied at all levels of education except higher, but including continuing and non-formal education, can no

longer be met due to the economic and financial stringency of the transition period.”⁸

National policies, strategies and programmes

Strategies can be distinguished at two levels: for the CIS as a whole, of which these states are members, and for the five separate countries. It is useful to examine how far policies have been adopted for the communications sector generally, and for information and communication technologies (ICTs) within education.

On the dissolution of the Soviet Union, the CIS countries agreed to share information technology resources relevant to research and education developed within the Union or among the member countries. Agreement was reached in 1992 between Azerbaijan, Russia, Armenia, Belarus, Ukraine, Moldova and the five central Asian republics. However, despite all good intentions, 90 per cent of the formal agreements made by the CIS have not been implemented.⁹

A review undertaken by the UNESCO Institute for Information Technologies in Education (IITE) provides some data on policies in four of the countries. (Their review did not include Turkmenistan.) Table 2 reproduces their data.

The IITE review did not consider the content of this documentation and it is not possible, therefore, to say how far these policies reflect, and are taken account of within, national policies in relation to ICTs. The picture they give, which is consistent with other information, is of Kazakhstan and Uzbekistan, the richest countries in the group, having gone further than the others in the development of policy. The general emphasis seems to be on secondary (and probably senior secondary) education. Development of curricula has gone ahead. Only in Uzbekistan is there a particular reference to the use of the Internet.

Alongside national policies there have been individual initiatives, many of them launched from outside the region, to promote or support the use of ICTs especially in higher education and for training. In all five countries, for example, an American Internet Access and Training Program (IATP) is aimed at people who have studied in the United States and returned home; it also aims to provide training in ICTs to professional groups that include educators. It runs some training programmes as well as providing access to the Internet (www.iatp.uz/about.htm).

In terms of national policies on broadcasting, the region gives a consistent picture of radio and television remaining dominated by state broadcasting corporations. With the exceptions of external broadcasters, such as the BBC and Voice of America which both have transmitters in Kazakhstan, the radio stations listed in the *World Radio TV*

Table 2: Government documents on ICTs in education

	Policies up to 2002	Policies from 2002
Kazakhstan	<ul style="list-style-type: none"> Education Law No. 3904 adopted 7 June 1999. The government programme of the President of the Republic of Kazakhstan, ICT Application in Secondary Education Systems, approved by Presidential order no. 3645 on 22 September 1997. The government standard of information education (grades 7-11). Curriculum on Informatics (7-11 grades). 	<ul style="list-style-type: none"> The government programme for secondary education in the Republic of Kazakhstan (2002-4). The information integration programme for elementary and secondary vocational institutions in the Republic of Kazakhstan. Approved by RK government resolution No. 616 on 10 May 2001.
Kyrgyzstan	<ul style="list-style-type: none"> Curricula, syllabi and a draft of government educational standards for Informatics. Curriculum approved by Kyrgyzstan's Education Ministry. 	<ul style="list-style-type: none"> KR Government resolution No. 697 titled Approval of the Information and Communication Technologies Development Programme in the Kyrgyz Republic (8 November 2001).
Tajikistan	<ul style="list-style-type: none"> Development and incorporation of new ICT into the education system. Computerisation of information processes in education management. 	<ul style="list-style-type: none"> A co-ordinated plan on complex education issues (2001– 10). Official statement ordering the analysis of ICT efficiency in education, approved by the Education Ministry and the Academy of Sciences.
Uzbekistan	<ul style="list-style-type: none"> Education Ministry Resolution No. 230 (2 May 2001). The Computer and Information Technologies Programme for 2001– 05, aiming to provide extensive access to the Internet. 	<ul style="list-style-type: none"> Education Ministry Order No. 237 (29 June 2001) to create the New Information Technologies Centre.

Source: UNESCO-IITE 2002, Appendix 8.

Table 3: ICT school use in Central Asia

	Kazakhstan	Kyrgyzstan	Tajikistan	Uzbekistan
Percentage of schools with computer classrooms	100	66	11	46
Percentage of computers which are IBM or Apple compatible	95	4	4	8
Students per computer	62	57	48	100
Percentage of schools with Internet access	0	0	2	0

Source: UNESCO-IITE 2002 diagrams 2,3,4,7

Handbook 2002 appear to be entirely state broadcasters, although this may conceal a measure of privatisation. The same picture emerges in relation to television, although in much of the region there are also relays from Russia, Turkey and Iran. Post-Soviet transformation appears to have produced only partial shifts away from government control. Internews, an Internet news service funded by USAID, reports that in Kyrgyzstan a widening of ownership of stations in the 1990s was followed by a narrowing and a concentration in the hands of those close to government.¹⁰

There have, however, been some moves towards using television for informal education about the values of the new society. Building on the strengths of Kazakh cinema, a Kazakh-British co-production *Crossroads (Kavusahi* in Kazak) has attracted large audiences for programmes that look at the problems of working in the new style economy, and successfully fought the competition from Russian and American sitcoms.¹¹

In Uzbekistan plans are underway for a series of radio dramas, the Silk-Road Radio Soap, which will address issues of health, agriculture and contemporary national issues. (UNESCO, in reporting on it, carefully avoids saying whether it will address trickier issues including AIDS and politics.) The programmes are apparently made in both Uzbek and Tajik and for use in Uzbekistan and Tajikistan (www.unesco.org/bangkok/education/ict).

The continuing public control of broadcasting gives countries the means, if they have the will and can find the finances, to use broadcasting for education.

Current level of ICT access and use

The IITE survey referred to above makes it possible to summarise the extent to which four countries of the region are using ICTs in the classroom. Although the title of the survey refers to secondary education, the text refers to computer use in schools at all three levels. It is, however, possible that the survey respondents treated the IITE questionnaire inconsistently. With those cautions, the survey gives the picture set out in Table 3.

It seems reasonable to assume that Kazakhstan interpreted the enquiry as referring to one group of its schools (possibly those with senior secondary classes only) as the logistics of equipping all its rural schools with computers would be forbidding. The study did not make it possible to distinguish between the use of a single computer for management purposes, and it is possible that some of the computers revealed by this survey were used in the office rather than in the classroom. The survey reports that the majority of Uzbekistan computer classes have programmes for elementary classes and that, where information was supplied, most of the software was developed by domestic specialists.

Reflecting the low densities of population and restricted national telephone systems, the Internet is irrelevant to basic education in Central Asia. Indeed, Kyrgyzstan notes that Internet access has become more difficult than it was since the winding down of a Soros Foundation project which was exploring the potential for the use of the Internet in the region.¹²

There may be potential to use a range of technologies for the updating or retraining of the teaching force. Distance education techniques have been widely used for this purpose, sometimes in countries in transition like Mongolia and South Africa, though more rarely in the former Soviet bloc. Uzbekistan is developing a distance education programme for secondary teachers within the context of its reform of secondary education. The UNESCO Institute for Information Technologies in Education is reported to be holding a workshop on this topic in Tajikistan in October 2003, which may shed light on the opportunities and constraints.

The picture that emerges is one in which governments, moved perhaps by a quest for post-Soviet modernisation, perhaps by middle-class pressure, perhaps by international enthusiasms for ICTs in education, have been compelled to frame policies and to begin bringing computers or informatics into the curriculum. With the exception of Uzbekistan, and like most of the other CIS states, computers are not expected to be a support for other subjects in the curriculum.¹³ Rather, they seem to have been used for teaching *about* ICTs. But they are being used on a very modest scale, probably with cottage-industry software, and often with obsolete hardware. With all the other pressures

on the educational system this is hardly surprising. The relative insignificance of ICTs within the context of educational transformation is symbolised by the fact that the two country papers from Central Asia produced for the International Bureau of Education 2001 biennial conference barely mentioned the technologies in their analysis of the educational problems.¹⁴

Major initiatives

Computers in Schools in Kyrgyzstan

Kyrgyzstan's exploration of the use of computer-based technologies in schools probably reflects experience more generally. As already noted, Kyrgyzstan inherited a sound educational system from the Soviet Union and sees itself as the leading CIS state in the reform of education. As far back as 1995 it developed a national ICT programme which included an educational element, but this was only partially implemented because of shortage of funds. In 1996 the mass computerisation of schools began with funding from the Asian Development Bank with some 100 kits, each with 12 work stations in a local network being provided to schools. Over the next three years, the number of computers in schools expanded as with donations either by foundations or by the private sector. Active steps were taken to expand this process in 2000 with a further 1,450 computers provided with Ministry of Education and foundation funding. It seems, however, that expansion was more rapid between 1996 and 2000 than in the period 2000–2003. The result of this apparently piecemeal development is that in middle and senior secondary schools there is now one computer for every 240 students, but that ratio worsens to only 1:971 if you remove from the equation all the outdated, incompatible Soviet-era computers.

Originally, there were attempts to distribute computers evenly throughout the country, but because of donations and one-off initiatives, distribution has become more random and uneven. Only about 21 schools had Internet connection in April 2003, and the use of the Internet has declined since the end of a Soros Foundation programme that was exploring the use of the Internet for communication and development in the region. There are four main reasons for the restricted development of Internet use: the telecommunications infrastructure is limited, ISPs are not available in rural areas, costs are high and senior staff in schools are not persuaded of its value.

The expansion of computer use in the classroom generally is constrained by a number of factors. First, there is a shortage of teachers with an appropriate specialty. Nor are there technical and support services for schools. There is also a lack of an appropriate qualification structure for these teachers; a training system was included within the ADB project but not funded. In fact, in 2002–03, there were only 1,345 teachers of informatics in 2,029 schools which

included 1,694 middle schools. Meanwhile few teaching materials are available in Kyrgyz and available software, for example about programming and algorithms, does not match the demand.

The Kyrgyz government now does have programmes which it would like to see developed in 2003–07 but these are dependent on funding. It would like to put 7,000 computers into schools, but at US\$ 500 per computer this would require US\$ 3.5 million for the computer hardware alone. Access to the Internet would require considerable recurrent expenditure, on top of that required for other uses of computers, estimated at US\$ 1.2 million per annum if 1,700 schools were connected.

A project for an educational management information system appears to be making only slow progress.¹⁵ A review, conducted under the auspices of UNDP, sets out priorities for developing the country's information technology outside the schools. In considering human resource development it argues for the need of the systematic education of senior government officials, improving educational management systems and the development of an Internet educational portal. By implication these moves are needed earlier in developing national readiness for the wider use of the technologies than school-based programmes.¹⁶

Two general conclusions follow from Kyrgyzstan's experience and appear to be reflected elsewhere in the region. First, the use of computers in schools has been heavily dependent on external funding so that the pace of change has in part been a function of aid policies of agencies like the Soros Foundation and the Asia Development Bank. (This may well be a contrast with the educational use of older media such as radio.) Second, some early developments relied on hardware and software that were incompatible with the international standards which market forces have more recently been imposing. Old Soviet computers and software to teach programming skills do not fit with demands from learners or employers today.

Distance Education in Kazakhstan

The government of Kazakhstan, in co-operation with the UNESCO Institute for Information Technologies in Education, has set up a pilot project of distance education for middle schools. The project was launched in 2001 with six schools in two districts of the country. It is now reported to involve 68 schools in the western district, 43 schools in the eastern district and 326 schools in the Pavlodar district in the more industrialised northeast of the country. The project has required the installation of some five to 10 computers in each school together with lecture rooms equipped with television. It appears to be designed, at least in part, for real-time interaction with specialist teachers, although it also looks ahead to tapping resources from Moscow through the Internet.¹⁷

Backwards and Forwards with the Internet in Uzbekistan

The UNDP began supporting Internet development in Uzbekistan in 1996 and continued to do so for some years, alongside other donors. The Internet was, however, seen by some politicians as a potential threat. This led the government in 1999 to make the state-owned operator of the national data communication network the sole operator of the national network with a monopoly on access to the Internet backbone. Funding agencies, including the Soros Foundation and USAID, withdrew their support. UNDP has, however, continued to work and has work in hand which includes training about ICTs for those working in small and medium enterprises.¹⁸

But politics changes priorities and USAID has come back into Uzbekistan with a set of projects which includes the Internet Access and Training Programme (IATP) referred to above and a “computers for schools” project. This project is run by an American non-governmental organisation (NGO) IREX (International Research and Exchanges Board) and has installed an average of 10 personal computers in each of about 100 primary and secondary schools throughout Uzbekistan, with funding from USAID which has a new priority “on education and youth in Central Asia.” IREX reports that when the computers are fully deployed, 10,000 students a day will have access to the Internet (www.irex.org/programs/uxc.index.asp). While their website reports do not discuss the aims of the project beyond a general concern with fostering democracy and internationalising education, the reference to the Internet suggests that connectivity, probably alongside teaching of informatics rather than the use of computers within the curriculum, is central to the project.

Public Education and Information through the Internet in Tajikistan

Despite the technical constraints, agencies are beginning to use the Internet for public education in Central Asia. In Tajikistan, for example, IATP has put on its server a website about tuberculosis, which is a major health problem in the country. The site was created by five medical professionals in Dushanbe and was initially designed to provide information to the medical profession (<http://irex-tj.org/~dots>). IATP report that, “The participants initially created a Russian-language version of the website because Russian is universally understood by doctors in Tajikistan and the Eurasian medical community at large. Plans are underway to translate the website into Tajik, a difficult task given the lack of medical terms in the Tajik language, but an important one for making the information more accessible to patients. The committed group of participants continues to work on the project, planning to add information about the treatment facilities of various hospitals and links to relevant web resources. As treatment methods advance, so will the

website.” (www.irex.org/programs/iatp/news/2003/01003-ca.asp#web).

The University of Central Asia

The university has been established by the Aga Khan Foundation and has its first campus at Khorog in Tajikistan. It plans to open campuses in Kyrgyzstan and Kazakhstan. The university’s main purpose is to provide education relevant to the needs of mountain people so that the theme of development in high mountain areas is central to its work. Alongside its degree-level work the university has, from its initial planning, also been interested in the development of community education. Taking account of the scattered nature of its audience it is also committed to the use of appropriate distance education technologies and has been exploring what these should be. While the university is only in its early days, it could become of major significance not only for the courses it is running but also for its exploration of their methodologies.

Soap Opera in Tajikistan and Uzbekistan

As noted briefly above, a Silk-Road Radio Soap builds on regional traditions of storytelling to discuss current issues in a twice-weekly radio drama series, produced and transmitted in Uzbeki and Tajik. The programmes are externally funded and have had support from UNFPA, UNESCO, UNODCCP and UNHCR together with the British government. Some 200 episodes have been completed and a comic-strip version is published in Tajikistan and Uzbekistan. Studio and airtime are provided free by Tajikistan and Uzbekistan.

Evaluation reports on the series have not been located, but UNESCO notes that:

The themes dealt with in the radio dramas can be grouped in three categories, in accordance with the priority areas of the main funding agencies: family and reproductive health, agricultural themes and contemporary national issues such as humane and considerate treatment of displaced and underprivileged groups in society, ethnic harmony and tolerance in society and trafficking of women. New themes are constantly surfacing, in the light of ongoing needs assessment, consultation with stakeholders and audience research. These are incorporated in the radio drama storylines and scripts, through existing and developing characters and scenarios. In this way, the Silk-Road Radio Soap continues to be a medium for effective contemporary education, while also drawing attention to current, topical issues (www.unescobkk.org/education/ict/v2/info.asp?id=14355).

Constraints on ICT use

The major constraints on ICT use in these countries follow from their economics, their geography and their history, discussed briefly above. Assessments of e-readiness make it clear that the countries face major difficulties which need to be overcome in hardware, software and training in seeking to expand the information technology sector in the economy.¹⁹ Constraints on educational use inevitably follow.

There are also potential constraints arising from questions of language and of alphabet. These are not likely to be serious at the higher levels of education, provided Russian or English is used. These remain the dominant languages of international trade and are apparently widely used in the government and private sector within the region, so language may not be a constraint on the use of the technologies in training and in relation to employment. Any proposals to use computer-based ICTs with small children or for non-formal education – which might well fall on other grounds – would need to take this into account. But any move to the increased use of national and local languages, rather than Russian or English, adds another layer of problems to computer-based activities.

Analysis

The development of the use of the technologies in education needs to be seen in the context of the process of transition which has dominated Central Asia over the last decade. The reduction in funding for education, which followed the collapse of the Soviet Union, has meant that educational innovations of many kinds have depended on external funding. A partial dependence on Moscow and on the richer parts of the former Union has been replaced by a reliance on the shifting policies of the aid agencies. External funding is, for example, a dominant theme in each of the illustrative projects discussed above. The evidence also suggests that a number of the agencies have moved away from an earlier interest in the use of computer-based technologies in school. The Asian Development Bank and the Soros Foundation, for example, have previously funded work in these areas but are no longer doing so. The Aga Khan Foundation, which funded early work on the use of computers in schools, in Kenya for example, does not appear to have this as a priority today. With the exception of the Silk-Road radio project, there does not seem to have been external support, or dramatic endogenous interest, in the use of radio despite its technical advantages for a region. With GNP per capita of less than US\$ 1000 in four of these countries, the expansion of the use of ICTs in education looks as if it will remain dependent on external support.

That support in turn will depend on achieving clarity of purpose which does not seem to be present in much of the reported thinking and discussion from the region. Accounts

of the use of computers in school, for example, do not specify why this is seen as desirable. Insofar as one can infer from the documentation, computers are seen as desirable in some cases in order to teach informatics, in others to allow access to the Internet. In contrast, there is little discussion of their use within the curriculum more generally, or within the process of educational reform, or simply for children to acquire basic skills in word processing or the use of spreadsheets. One consequence is that the shortage of specialist teachers of informatics is seen as a major constraint on development. A further consequence is that there seems to have been little informed discussion about the level in the educational system at which it makes sense to invest in the technologies or the extent to which vocationally oriented education in this area belongs properly to the publicly funded sector of education, or the publicly or privately funded training sectors.

Generally, Central Asia gives the understandable impression of being outside the mainstream of thinking about the roles of the technologies in education and distance education. The CIS republics, including Russia itself, rejected the Soviet Union traditions of distance education, which were overly dependent on print but had solid achievements to their credit and had worked out firm links between education or training and employment. But, having abandoned those approaches, at least some of the new thinking about distance education, as in the schools project in Kazakhstan, seems to be based on assumptions about the value of real-time, technology-based teaching at school level and of the use of master teachers in the television or computer classroom – a model which has been severely criticised and often failed to survive where it has been tried elsewhere. Other plans, including those for higher education in the region, are dominated by discussion about high-technology approaches in contrast to those widely used in, for example, the major Asian open universities. For poor and remote countries which have abandoned the educational traditions and practices of over half a century, there is a real danger of adopting currently fashionable approaches in a hurry.

What is needed is hard-headed analysis of the case for and against using the technologies in education backed by a critical analysis of successful and unsuccessful experience elsewhere. The encouraging feature of the literature from Ministries of Education in these countries is their apparent scepticism about the technologies and their proper concentration on the important jobs of improving and expanding education.

Two gaps: First, there is little here about the use of computers to help in the management of schools or of educational systems, and of their significance in any decentralisation of education. Second, again, radio seems a medium which was seen as powerful in the Soviet period, but which would seem from the literature to be suffering comparative neglect today.

NOTES

- 1 A.M. Vassiliev, *Central Asia: Political and economic challenges in the post-Soviet era* (London: Saqi, 2001), 16.
- 2 G.R. Capisani, *The Handbook of Central Asia* (London: Tauris, 2000), 85-6.
- 3 See note 1 above, p. 271.
- 4 Jean Radvani in Capisani. See note 2 above, pp. xi-xii.
- 5 "At the Crossroads: A survey of Central Asia," *Economist* 26 July 2003.
- 6 I. Kitaev, ed., *Assessment of Training Needs in Educational Planning and Managements (with special reference to Central Asia)* (Paris: UNESCO/IIEP, 1995), 8,15.
- 7 UNICEF, "Education for all? (The MONEE Project, CEE/CIS/ Baltics – Regional monitoring Report 5)" (Florence: UNICEF International Child Development Centre,1998), 23).
- 8 See note 6 above, p. 9.
- 9 See note 1 above, p. 26.
- 10 "Television and Radio Companies, Operating in the Republic of Kazakhstan," *Internews* March 2003, www.internews.kz/eng/stations.
- 11 See note 2 above, p. 68.
- 12 National Commission for UNESCO, Kyrgyzstan 2003, unpublished report.
- 13 "Basic ICT usage indicators in the Baltic and CIS states" (Moscow: UNESCO Institute for Information Technologies in Education, 2002), 14.
- 14 N. Bekturganov, "On the Development of the System of Education in the Republic of Kazakhstan, IBE conference paper (Ministry of Education and Culture of the Kyrgyz Republic, 2001), www.ibe.org.
- 15 This account is based on National Commission for UNESCO, Kyrgyzstan 2003. See note 12 above.
- 16 F. Nam, "Monitoring of ICT Development in the Kyrgyz Republic – ICT Strategy, Methodology, E-readiness Assessment, General Approach for Assessment of Developing Countries" (Bishkek: UNDP, n.d.), 38.
- 17 National Commission for UNESCO, Kazakhstan 2003, unpublished report. See note 12 above.
- 18 "Information and Communication Technology," UNDP Uzbekistan, 2002, www.undp.uz/focus/information.cfm.
- 19 See note 16 above.

