



Use of ICT for Teaching-Learning in Schools

The current issue of the Newsletter focuses on “Use of Information and Communication Technology (ICT) for Teaching-Learning in Schools”. The articles have been written by various experts and researchers working in this area in context of different member-countries in Asia Pacific region. These essays cover Australia, Bangladesh, China, India, Malaysia, Nepal, Sri Lanka and Vietnam.

In this issue...

| | |
|--|----|
| Measuring Digital and ICT Literacy: Major Challenges | 3 |
| Integration of ICT in Teaching-Learning Process at Secondary School Level in Bangladesh | 4 |
| Use of ICT in Secondary Education in Bangladesh: Policies and Practices | 5 |
| An Analysis on the Application ICT in Schools of China and Existing Issues | 7 |
| ICT based Initiatives in Teaching-Learning at School Level in India | 9 |
| Use of ICT to Address Specific Learning Disability in India | 11 |
| Use of ICT in Teaching-Learning Process at School Level in Malaysia | 12 |
| Use of ICT in Teaching-Learning Process: Policy Provision and Pedagogical Prospects in Nepal | 13 |
| Use of ICT in Teaching-Learning Process at the School Level in Sri Lanka | 14 |
| The Application of Information and Communication Technologies in Vietnam | 15 |
| News from ANTRIEP Member-Institutions | 17 |

The first article focusing on global situation, has discussed various challenges in developing comparable measures of digital and ICT literacy skills. These challenges can be classified with regard to over-time comparisons, cross-country comparisons and cross-group comparisons. The article has discussed all these aspects in greater details. It has also suggested for collecting contextual data for this purpose.

There are two articles on Bangladesh. Referring to the efforts made by the government under the programme ‘Digital Bangladesh’, the first article has discussed how ICT is being integrated in teaching-learning process at secondary level comprising of mainly four areas: pedagogy integration, digital content development, teaching-learning process and teacher’s professional development network. In addition, the government is also integrating management and information system; monitoring and mentoring system; and in continuous professional development as the article has revealed. The second article also has focused on use of ICT in secondary education in Bangladesh. This article has discussed the efforts made by the government as well as NGOs and development-partners for introducing ICT in education.

The subsequent article has focused on China’s experience in introducing ICT in schools of this country which has been guided by the core idea of integrating ICT with pedagogy deeply. The article has also discussed various issues involved in application in ICT in schools as well as few examples of best practices in this area.

Like Bangladesh, there are two articles describing Indian situation in the area of ICT based initiatives. The first article discusses various programmes undertaken by the Government of India like Saransh Portal, Web portal under Shala Siddhi, and an IT based school management system under Shala Darpan. In addition, it has also focused on smart schools and ICT enabled schools under RMSA programme, and various efforts made for implementing computer aided learning. The article has also discussed few initiatives taken under the National Repository of Open Educational Resources.

Another article on Indian situation has focused on use of ICT for the children with the problem of learning disability and various challenges involved in use of technology to teach such children. India needs to have an enabling policy for using ICT for such children.

The article on Malaysian experience has discussed the present status of implementation of ICT based education in the schools of this country. Although, currently there are evidences of many gaps between the actual and desired efficacy of ICT use in classrooms, as the country has an ICT policy in education since 2010. The article has discussed various efforts made by the government for capacity building of teachers and enhancement of management skills of principles in the field of ICT.

Like all other countries, ICT is also being used in teaching-learning process in Nepal which has been discussed in the subsequent article. It has mentioned that National Curriculum Framework of Nepal has considered ICT as a main tool for classroom transaction and clarifies different ways of using it in education. The article has discussed the present status of using in ICT

in pedagogical matters, development of teacher competencies and so on. It has suggested for developing ICT enabled environment in schools for promoting teaching-learning process.

The article on Sri Lanka's experience discusses the way ICT is being expanded rapidly across the country even in the rural areas. Major initiatives have been taken up for making students capable of using Word Processing Software (MS Office), Electronic Spread Sheets, Creating Electronic Presentations and Data bases, etc. However, it has been suggested some more efforts to be made for its further improvement.

The experience of Sri Lanka is followed by an article on Vietnam's experience in the area of application of ICT in the country context. The article has focused on present policies and practices of ICT applications for teaching in schools based on different models and approaches. In addition, the article has discussed about various challenges to be met for further promotion of ICT in school teaching in order to enhance the quality of education.

All the articles included in this issue have provided a detailed understanding about the existing policies and practices in different countries for application of ICT in teaching-learning process in schools. Although, some innovative and best practices could be found in almost all countries, but at the same time, these countries are also facing various challenges while translating their policies in action, particularly in the field of use of ICT in classroom transaction. Hence, more attention is needed for further improvement and enhancement of quality of education as suggested by all authors.

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Measuring Digital and ICT Literacy: Major Challenges

It is widely known that there are many challenges in measuring digital and information and computer technology literacy skills across a wide range of countries. Being competent in digital literacy and information and computer technology (ICT) has increasingly become important for full participation in a knowledge economy and an information society. Consequently, interest at the national and international level has emerged to explore the best ways of measuring the extent to which competence in this area is being achieved, and how equitable access to this knowledge is within and across countries.

As part of those explorations, ACER was commissioned by UNESCO to review possible future approaches to the measurement of digital and ICT literacy skills across a wide range of countries. The findings from that review, published as a background paper for UNESCO's 2016 Global Education Monitoring Report, revealed that, while some of these challenges are similar to those in cross-national assessments of student learning of other subject areas, there are also those specific to measuring digital and ICT literacy skills. Challenges can be classified with regard to over-time comparisons, cross-country comparisons and cross-group comparisons.

Over-time Comparisons

An assessment of digital and ICT literacy skills needs to react to changes in the patterns of use of ICT. Past decades have shown rapid changes in ICT related technologies which have impacted on the way ICT is used and applied. One possibility to deal with changes in the nature of ICT use is choosing a modular design where some test modules are replaced with the new ones reflecting more recent developments, while retaining sufficient material from previous tests to enable comparability over time. To assess digital and ICT literacy skills, it is necessary to create authentic virtual environments, in which test-takers have to show their competencies regarding different applications of ICT.

Cross-country and Cross-group Comparisons

Assessing learning outcomes across a wide range of contexts is an ongoing challenge for all international studies. Any performance-based assessment of digital and ICT literacy skills needs to be done on computers or equivalent electronic devices in order to measure skills in an authentic environment. The mode of a computer-

based delivery must be chosen so that it can be applied across all countries participating in the assessment.

As in other assessments, measuring digital and ICT literacy skills should be done in a way that does not advantage or disadvantage certain sub-groups. Responses to specific test item should only be influenced by the ability of test-takers and not by their gender or socio-economic background. While in many developed countries vast majorities of students have access to ICT at home as well as in school, young people in developing, low-income countries may have little experience with and/or limited access to ICT at home or in school or both.

Given the diversity of familiarity with ICT across highly diverse population sub-groups, as well as across national boundaries, a global measure of digital and ICT literacy skills would have to cover a wide range of competencies, from very basic skill levels to sophisticated knowledge about complex applications.

One way to address this is to allow countries to select from different modules or components that assess at appropriate levels for their populations but which are linked to measure a common construct that underpins the development of all test content.

Collecting Meaningful Data

In order to properly inform education policy, it is necessary to collect contextual data in addition to data about digital and ICT literacy skills. Contextual data provide information about factors influencing variation in skills and describe the contexts in which they are learned. It will be important to collect contextual information at the following levels:

- The individual learner
- The school/classroom environment
- The home and peer environment
- The contexts of the wider community.

Contextual data would be used to analyse within and across countries the extent to which socio-economic factors, and school and home contexts influence variance in a person's digital and ICT literacy skills.

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Integration of ICT in Teaching-Learning Process at Secondary School Level in Bangladesh

In many developing countries like Bangladesh, the conventional methodologies are unfortunately still being practiced to equip learners with the necessary skills required for their holistic development and prepare them as digital natives for the 21st century's globalised and competitive world.

The traditional teaching-learning process is most often teacher-centred that offers very limited opportunity for learners to get actively engaged in the learning process. Therefore, the vision of 'Digital Bangladesh' initiated by the present government in Bangladesh, is a real milestone in converting thousands of bare 'chalk and duster' classrooms into Multimedia Classrooms (MMCs). Thus Information and Communication Technology (ICT) has been introduced in classroom instruction with a belief that it can contribute to making learning attractive, joyful, and learner-centred. In addition, to materialise 'Digital Bangladesh', the present government formulated a new education policy in 2010, and one of its objectives is to increase the use of ICT as a teaching-learning tool at all levels of education.

Integration of ICT in teaching-learning process at secondary school level in Bangladesh comprises mainly four areas - ICT and pedagogy integration, digital content development, teaching-learning process and teacher's professional development network. With a view to strengthen teaching-learning process, the government set the curriculum goals based on Bloom's Taxonomy and suggested pedagogical practices to achieve those goals. Integration of ICT has been an integral exercise for promoting pedagogical practices in the classroom as well. In this regard, the Government of Bangladesh, through Access to Information (a2i) programme, has established MMCs in over 23,000 secondary schools and provided training to more than 70,000 secondary school teachers on digital content development and MMC management irrespective of their teaching subjects so that they can use ICT in teaching-learning process effectively.

One of the major achievements of this initiative is that 100% of the teachers perceived MMCs as very important as it was reflected in the survey a2i programme conducted although they are often quite indifferent to embrace any new technology in classroom instruction. Besides, most of the secondary schools have their own websites and by 2018, all secondary schools will be connected with the high-speed internet connectivity.

In addition to textbooks, teachers in Bangladesh today use digital contents in MMCs to explain difficult and/or abstract concepts included in the curriculum to students with the help of text, images, animations and videos on presentation slides. Furthermore, electronic version of textbooks is available at secondary level for students to use as self-learning material in learning process. Besides, few national and international NGOs have also developed Computer Aided Learning (CAL) resources to complement and supplement the national textbooks. Use of ICT in classroom has certainly contributed to increasing participation rate as well as decreasing the dropout rate of students, as the survey shows.

For the first time in Bangladesh, thousands of teachers have been empowered through the MMC model. These teachers have developed 1000 standardised contents for some specific subjects which are usually considered difficult to teach. More importantly the teacher portal (www.teachers.gov.bd) has brought a revolution in creating a virtual community of teachers enthusiastic about integrating ICT into classroom instruction and thus being empowered. Every day, teachers from different corners of the country upload a significant number of digital contents on various topics on this portal, and anyone can easily download and edit these contents for using in the classrooms. To date, teachers of secondary schools created and shared 100000 digital contents. This shared platform is considered as a significant source of knowledge sharing and professional development.

As a signatory to the sustainable development goals, Bangladesh is determined to ensure quality education for all. Therefore, introducing innovative ICT solutions attempts to replace conventional education system with technology integrated instruction even in the remotest area where underprivileged learners have less access to quality education. This way, it also demolishes the digital divide between rural and urban areas. Further, with a view to ensuring 21st century education, the

Government of Bangladesh is also integrating ICT in management and information system; monitoring and mentoring system; and in continuous professional development.

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Use of ICT in Secondary Education in Bangladesh: Policies and Practices

Information and Communication Technology, popularly known as ICT, has become a useful tool in promoting quality of education worldwide. It has been introduced in education with a belief that it can turn teaching-learning into an enjoyable event to the learners. Transformation from traditional teacher-centric classroom to learner-centric classroom can also be possible using ICTs innovatively at anytime from anywhere. In recent years, aligned with the current trend, Bangladesh also has considered ICT seriously for educational enhancement. ICT has got importance in policies and curriculum. The government, NGOs and development-partners are playing a significant role in introducing ICT in education.

National ICT policy of Bangladesh, framed in 2009, perceived ICT as means of holistic development of the nation. The policy intended to bring necessary reforms in curriculum, pedagogy and teachers' capacity building where ICT would be an effective tool. This includes provision of ICT literacy to the teachers and learners of primary, secondary, and tertiary levels. ICT in education was further emphasised in National Education Policy, 2010. According to the policy, the government intends "to extend the use of information and communication technology (ICT) instrumental in education process at every level". The policy reminded the curriculum and

material developers to accommodate ICT in the teaching-learning process which has resulted in inclusion of ICT courses in the curriculum of different education levels and teacher training programmes.

As a consequence of the above, with financial support from UNDP and USAID, the government initiated Access to Information (a2i) project with an ambition of making teaching-learning more effective and enjoyable to the learners and teachers using ICT. This project followed a three-dimensional approach in its effort to enhance pedagogic improvement process: establishing Multi Media Classrooms (MMCs) at secondary schools, training of teachers on making ICT aided educational contents on hard-to-grasp topics, and making electronic versions of the textbooks. In order to establish MMCs in schools, the government has provided ICT devices such as laptops and internet connections from early 2010. As of 2015, nearly 72% of the secondary schools got multimedia facilities and about 82% got computer facilities. Computer teachers were available in 61% of all secondary schools. Up to 2013, 18,500 secondary teachers received training on preparing digital multimedia contents independently.

BRAC, an NGO in Bangladesh, initiated ICT based teaching-learning activities in secondary schools, much

before the government, through its Computer Aided Learning (CAL) programme in 2004, as a pilot project. At present, this programme is being operated in 50 schools. Initially, teachers were provided training in English, Mathematics and Science. CDs containing interactive animated materials on these subjects for different grades, computer and multimedia projector were provided to the project schools. The materials were prepared with an expectation that, these would generate learners' interest and enhance their participation in teaching-learning activities, would increase attendance and decrease dropout and would improve the overall quality of education alongside attaining the desired learning outcomes. The teachers of these 50 project schools also received government-provided training on digital content development.

A study has revealed that the teachers and the learners mostly liked the materials for attractive animated presentation of the contents. The head teachers of the schools praised CAL materials mentioning that these materials were developed keeping the child psychology in mind. Teachers reported that these materials increased learners' participation and reduced teachers' work-load of lesson delivery. However, BRAC's experience on multimedia classrooms does not provide a smooth picture as claimed by the government. Research showed that these materials could not bring desired changes in classrooms. No mentionable change was observed between the general classroom and multimedia classroom. Research revealed that prime task of the learners in the multimedia classrooms was only watching and listening but not actively participating in asking questions or contributing in collaborative learning tasks like group and pair work. It seemed that teachers still struggled in using these materials properly. They could not engage learners in activities as suggested in the materials and sometimes struggled to operate those

materials confidently. In group activities, very limited communication occurred among the learners which ultimately hindered proper teaching-learning process. Addition to these, the research identified a number of challenges and some of these were experienced by the government as well. For example, lack of teachers' confidence in using the multimedia contents, uninterrupted electricity and internet connectivity, slow decision-making process at the government level, etc. It has been found that teachers' perception played vital role in using ICT in classrooms. One of the shortcomings was that learners had very limited access to use the materials outside the classrooms that prevented them from using these materials on their own which could engage them in using these materials effectively.

Learning from the overall experience was that the ICT based materials provided by BRAC or developed by the teachers themselves were well appreciated by the users. However, desired changes in the classrooms did not appear. Teachers' weakness in pedagogical skills was clearly noticed. At this moment, changes are not required in contents but in teacher development approaches. Teachers should be provided with adequate training on how to blend technology with pedagogy. Monitoring was a regular practice of BRAC programme which was less practiced in case of the government initiative. Another vital issue is that either BRAC or government initiative did not keep enough room for the learners to use ICT independently but it is really important to make learners habituated with technology. Proper attention on these aspects, therefore, is crucial to avail maximum benefit of using ICT in secondary education.

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An Analysis on the Application ICT in Schools of China and Existing Issues

China has the largest education system with 270 million registered students, more than 500,000 schools and 16 million teachers. In recent years, education informationisation has become one of the main approaches to facilitate education reform and development in China. Guided by the core idea of *integrating ICT with pedagogy deeply* and basic principles of *innovating the mechanism and application-driven*, ICT has been widely used in school education with noticeable achievements. However, there are also some issues and challenges existing.

The Infrastructure Construction of ICT in Schools

With the Broadband Network for Every School Project, the Chinese Government has attached immense importance to the infrastructure construction in terms of network, computers and multi-media classrooms in schools. As a result, the internet-based teaching environment has been greatly improved, and the solid foundation of ICT application has been laid. Till 2016, 87% of primary and middle schools, except for the ones in remote rural areas, have gained access to the Internet. Among them, 60% have 10M bandwidth. In city areas, nearly all schools have internet access, and the percentage in countryside is 84%. As many as 17 provinces have seen a higher percentage of 90% and above with an access to internet. As for 'multi-media classrooms', classrooms in 47% schools are all multi-media equipped, and 82% schools have at least one multi-media. In 2008, the ratio of computers in schools and students was less than 6:100, and it increased to 12:100 in 2016.

The Application of ICT in Schools

Based on the data, considerable progress has been made on the application of ICT in schools with substantial impact on teaching-learning process. Till 2016, 42%

schools in China were able to use digital resources for teaching, and over one-third schools have built on-line learning spaces with total amount of 63 million. It was found that, 4.9 million teachers were using the internet for research on teaching, and 4.1 million teachers have been teaching by using it. About 64000 teaching points in remote rural areas have been equipped with related facilities, resources and applied ICT in teaching, and more than 4 million students in those areas benefit from it. Around 35% elementary and middle schools in China have developed their own digital resources, and 42% schools have all of their classes utilise digital resources in daily teaching. A new norm of using ICT in class, using it frequently, and using it widely has been formed.

In the sector of vocational education, a resource system including one digital repository with eight sub-databases on culture, heritage and innovation, one e-learning platform and 71 teaching resource repositories on different majors has been established, covering 19 categories of the programmes. This system has facilitated the application of online learning and curriculum development, and 400000 students person-time have gained credits of MOOCs that combine both E-learning and face-to face teaching.

Best Practices

A number of best practices of ICT application in schools have been observed in recent years. In terms of sharing quality education resources and facilitate education equity, Anhui Province has built on-line classroom through two-way video transmission, and explored the model from one school to multiple schools. As a result, 777 teaching points in 25 remote counties could improve their teaching quality and more than 20000 students have been benefitted from it. More importantly, students through models of demonstration in kindergartens, implantation in elementary schools, recorded broadcast

in junior middle schools and live broadcast in high schools, quality education resources in cities could be shared in Ganzi. Furthermore, the resources have been recorded, transmitted and applied in different categories and the propagation and sharing of them among schools in Ganzi has been strengthened. Also, the resources maintain close contact with life reality of students, teachers and schools in agro-pasture areas. More importantly, through this process, an effort has been made to promote equity in education.

In terms of in-depth application of ICT and leading education reform by it, schools in Putuo District of Shanghai City have explored actively on personalisation of ICT application to each class and student. Three types of models of Flipped Classroom, Tutoring at Class and Tailored Tutoring have been formed for this purpose.

Issues Existing in ICT Application in Schools

One of the issues in application of ICT in classroom is the uneven development of infrastructure construction. Given the restrictions of different social and economic development levels in different provinces, the infrastructure construction supporting ICT application varies in different areas.

The top-level design of quality education resources supply mechanism has not been sorted out. In some areas, the development of resources has not kept close contact with the market, and the market has not played the leading role in the process. Quality resources and support service for them have not been included in the list of government purchase yet. Students, teachers and schools have not been considered as the main bodies in this and it is hard to generate quality and customised resources.

The application platforms still have room to be optimised. For many areas, the platform of ICT application has not related to technologies like big-data and cloud computing, the market mechanism has not been encouraged, and the infrastructures have not been fully utilised. Some local platforms are separated from

the national one, and interconnection and collaboration between the two platforms have not been achieved. Thus, students and teachers have limited access to resources and services, whose adaptability is under-developed.

Tasks Ahead

The in-depth application of ICT needs to be further enhanced. Some local education authorities and schools have not fully realised the fundamental influence that information technology has in education development. The ability and motivation of students, teachers and education administrators to use the technology need to be further stimulated.

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Hon'ble Prof. Hj. Zainal Aalam bin Hassan, Director, Institut Aminuddin Baki, Ministry of Education (MoE), Malaysia has become the new Chairperson of the ANTRIEP, since 5 May, 2017.

ICT Based Initiatives in Teaching-Learning at School Level in India

The term Information and Communication Technology (ICT) includes various types of technological tools and resources such as computers, the internet, broadcasting technologies (radio and television) that are employed not only to communicate but also to create, disseminate, store, and manage information. Enhancement of quality of education through ICT and its awareness among stakeholders have positive impact on the society. ICT can be employed in formal and non-formal types of education and would eventually make the learners employable and socially useful part of the society. Employing ICT in teacher training can save substantial financial as well as manpower resources of the Government. Employing ICT in administration, monitoring and supervision can help in solving the problem of absenteeism of students and teachers amongst others.

In view of above, Government of India has taken several initiatives for the implementation of Information and Communication Technology in education. The measures taken by the Government of India aimed at developing ICT skills in students and make them learn through computer aided learning process. Saransh Portal aims to improve education of children by enhancing interaction between schools as well as parents and providing data driven support. Web portal under Shaala Siddhi and an IT based school management system under Shaala Darpan through its database will also be having an impact on the quality of teaching-learning in school. E-Pathshala platform has been created for showcasing and disseminating all educational e-resources, including textbooks, audio, video, periodicals and a variety of other print and non-print materials for school level learners. E-PG-Pathashala caters to the provision of a variety of print as well as non-print resources for the teachers and teacher educators. In addition, 'Smart Schools' have also been set up for familiarising the learners with the computers and,

teaching basic operations and usage at secondary level. As per available data till 2015, the number of ICT enabled schools established under RMSA in India was 85,127. Besides these national level programmes, many states have also distributed laptops to senior secondary level students, installed smart boards, projectors, digitised textbooks, put phonetic English on DVDs, and are interacting with Headmasters through interactive video-conferencing, conducting virtual classrooms.

Another major initiative has been provisioning of Computer Aided Learning Centres across the country. In Karnataka, the state has provided CAL Centres with sets of DVDs and interactive materials to use in the Centres, and is also implementing two satellite broadcasting initiatives in elementary schools. The first is called Edusat and the second is called Tele-Education which is currently being piloted in 1,000 schools. Tele-Education has introduced a feedback loop, enabling students to ask questions to moderators located around the State. Most states have video material for broadcast and distribution to schools, and interactive computer-based content for using in CAL Centres, amongst others.

An interesting innovation called Techno Teachers in Maharashtra and Subject Teacher Forums (STFs) in Karnataka are mention-worthy here. Techno Teachers are involved in developing websites, blogs, and apps, which have, in turn, led to the creation of peer support systems amongst teachers to initiate online discussion on innovative teaching methodologies, commons problems, and other issues faced in the classroom. It has been found that many states including Karnataka are increasingly using various subject-based email support groups like Google Groups, more focused support groups using social media platforms like WhatsApp and Face- book. Brief review of these very low-cost support systems indicates that they are very

active and provide excellent support to teachers who participate.

Under the National Repository of Open Educational Resources (NROER), free educational resources such as e-books are available now. **The Human Resource Development Ministry has launched the Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM), a web portal where Massive Open On-line Courses (MOOCs) are being made available on all kinds of subjects. As many as 32 channels have been provided under the Swayam Prabha Consortium which includes Kishore Manch, meant for school level learners and is provided by National Council of Educational Research and Training.** In addition, free satellite channels are being provided through TV (Gyan Darshan) and also on radio (Gyan Vani).

The **National Institute of Open Schooling (NIOS)**, in addition to its audio video programmes, tele-conferencing and television broadcasts, has launched a **web-radio facility** for its learners in collaboration with **Commonwealth Educational Media Centre for Asia (CEMCA), New Delhi** to bring educational and information content for the learners and the community. The subject contents are also available in NIOS website. **NIOS internet radio** involves streaming media, presenting listeners with a continuous stream of audio

that can be paused or replayed. **NIOS internet radio** services are accessible from anywhere in the world from **NIOS' website**.

The above discussion indicates that several initiatives have been taken by the Central and State Governments in India to enhance the use of ICT in classroom transaction, However, the country has to cover a long way to meet the challenges of bridging digital divide in reality.

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Next Issue of ANTRIEP Newsletter will include the Report of the Annual Policy Seminar of ANTRIEP on 'Demographic Change: What are the Implications for Education Policy and Planning? Findings from Comparative Research in Asia' conducted at Institut Aminuddin Baki, Ministry of Education, Genting Highlands, Malaysia from 3-5 May, 2017.

Use of ICT to Address Specific Learning Disability in India

India is striving for universal education of its 6-14- year-olds since the last many decades. It is also a signatory to all international treaties to achieve this objective. Unfortunately, it remains an elusive target. Besides enrollment data, there are survey findings suggesting that a substantial proportion of students are not learning in the schools at desired level and many of them are dropping out subsequently.

Researchers have been suggesting many reasons for such poor learning outcome which are related to infrastructure, manpower, evaluation and learning material itself. Accordingly, many reforms have also been planned by Government. The triangle of education consists of learners, teachers and curriculum. Though literature of education is rich enough to emphasise on individual differences of learners but is deficient to point out neurological differences of processing information present in the learners.

Medical science has pointed out the structure of brain and parts of cerebral areas being activated for different activities related to seeing, listening and synthesising. It has also made it known that our education system is so designed that most of the educational activities are performed in the left hemisphere of the brain. Children whose left brain is less active, they have preference for right brain over left brain, as a result, suffer in the educational system in spite of the fact that they may have better intelligence quotient. Such children exhibit symptoms of avoidance for reading and writing but liking for sports, arts and other activities. With the advancement of such knowledge, it is a known fact that Specific Learning Disability (SLD) exists and impacts as much as thirty per cent of the student population. It has also been included as one of the disabilities in the latest right of Persons with Disability Act of 2016 in India.

As we know disability is a social construct and diversity is part of nature, SLD children cannot learn in the existing pattern of education system which is so structured that left brain children are only catered by it. In such a structure, children whose left brain is less active, are

made disabled. If a few modifications are made during teaching- learning, they can also excel as other children. Therefore, few modifications can be suggested for these children which include use of bigger font, use of colour coding, mind maps, use of audio along with print, use of videos, films and computer for reading as well as for writing, spell checker, extra time, calculator, etc. Use of ICT can help these children tremendously. A child can read a lesson on computer as per his need. He can increase the font size, colour the portions, book mark it and also play audio along with it. A student can write his answers on computer with the help of spell checker and, as per his speed, without the worry of legible writing and spelling errors. ICT reduces dependence on others and gives him time to read as per his space and speed. These days, many softwares are available in the market to support SLD children. These are screen reader - JAWS, Artic; document reader - Read to Me, Text assist; voice recognition programmes - dragon; scanning software - omnipage; standalone reading machine - Kurzweil personal reader; document manger programme - pagispro, concept mapping software - inspiration; note-taking software - alpha master and all the inbuilt feature of word.

As is the case with most of the policies, there is no or insufficient rules, guidelines framed for implementation, the same status is applicable to the education of SLD in India. Educational functionaries are not aware about the symptoms of SLD, their testing, certification, pedagogy, use of aids and use of ICT and accommodation to be provided in the educational setting. In the absence of such knowledge, rules, guidelines, etc. 30 per cent population remains neglected. It is a huge number for quality and quantity assurance of learning. Therefore, it is suggested that educational planners should pay attention towards the education of SLD and use of ICT to cater to such children.

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Use of ICT in Teaching Learning Process at School Level in Malaysia

Widespread utilisation and employment of Information Technologies (IT) have paved the way for educational reform across the globe. The Internet, mobile computing, social networks and many other ICT advances have become essential to promote and boost learning level of students in schools. As such, the new challenges related with the integration of IT into all aspects of learning require revising the traditional educational paradigms that have prevailed and even persisted for the longer time.

With the advent of globalisation, the current learning requirements of students lean towards a fluid interchange of tools, methodologies and evaluation strategies. If realised, it will inevitably promote innovation at an accelerated pace and with it comes the corresponding growth for its benefactor country.

Currently, the gap between the actual and the desired efficacy of ICT use in classrooms is evident as ICTs are still seen to be less effective, particularly when the goals for their pedagogical use in classrooms are not clearly defined. In Malaysia, the ICT policy in education was developed in 2010. This policy articulates on three main points: i) accessibility and literacy of ICT to all students; ii) the role of ICT in the curriculum and also as a learning tool; and iii) as a leadership institute. The major concern in this regard is whether ICT can be used to enhance efficiency, effectiveness and productivity of management in education. More so, as some school leaders have not been prepared for their new roles as technology leaders, and have therefore, struggled to develop both the human and technical resources necessary to achieve ICT outcomes in their schools.

Findings from previous studies conducted by Malaysian scholars between 2014-16 showed that:

1. Teachers who attended training courses of ICT were more efficient, capable at using computers compared to teachers who had no training.
2. Use of ICT in teaching and learning had increased the students' achievement in school.

3. ICT integration has great effectiveness for both teachers and the students. It indicates that teachers should always be prepared and well-equipped in terms of ICT competencies and positive attitude to provide quality education and opportunities for students to improve their academic outcomes.
4. Use of ICT helps teachers to improve the quality of teaching and learning outcomes.

As an institution to develop the capacity of management and leadership in education, Institute Aminuddin Baki (IAB) ensures the high competency of principals and headmasters in the field of ICT. IAB currently offers a wide range of ICT courses to school leaders nationwide such as Virtual Learning Environment Management, Computational Thinking, ICT for Instructional Leaders, Multimedia Management, ICT Management, ICT Services and ICT Strategic Management (IAB, 2015). On top of that, IAB also organizes colloquium to provide platforms for gaining knowledge, skills and sharing knowledge of best practices in the field of ICT in schools. The transformational leadership and instructional leadership performed by principals and teachers have a significant impact on the amount of extra effort teachers put into their use of ICT.

IAB pledges to fulfil the needs of the quality management system and to achieve continual effectiveness in line with the objectives of IAB through Management Review Meetings. Knowledge and skills are important to perform managerial and leadership functions in a school organisation. Clearly, IAB's ongoing curricular revisions for a more specialised ICT training will aid school leaders professionally to respond to the current requirements of learners as well as teaching communities for improving teaching- learning process in schools.

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Use of ICT in Teaching-Learning Process: Policy Provision and Pedagogical Prospects in Nepal

ICT in Education

It is now widely accepted that Information and Communication Technologies (ICT) has an important role in teaching-learning process. The goal of using ICT is not only about overcoming the digital divide, but also enforcing, facilitating and furthering the pedagogical dimension of teaching-learning process in the classroom. In education, information dissemination can play significant roles. If well established to meet local needs, ICT can be used to disseminate, adapt and adopt educational content within and across curricula. It further contributes for the enhancement of education system.

Policy Dimensions

Using ICT in education is encouraged in Nepal. Keeping this view, National Curriculum Framework has clearly stated that ICT has been considered as a main tool for the promotion and transformation of education. There are three ways of using ICT in education: (i) as a tool for delivering information and or services, including school administration; (ii) as a tool to teach other subjects; and (iii) as an academic curriculum subject to equip the students with skills required to succeed in the knowledge economy.

Like, ICT Master Plan has also been developed in Nepal. It has envisioned ensuring extensive use of ICT in education sector and contributing for access to and quality of education for all; under a comprehensive mission of narrowing down the digital divide through the development of ICT infrastructure, human resource, digital contents and system enhancement in education. ICT Master Plan has aimed to develop ICT in education on four components as i) ICT Infrastructure: Equipment, Connectivity, Data Centre/Resource Sharing Platform; ii) Human Resource Development: Managers, Teachers, Trainers; iii) Interactive Digital Learning Materials:

Curricula, Contents, Reference Materials; and iv) Enhancement of Education System: good governance, transparency, OAS, effectiveness, efficiency and accountability in education sector.

Nepal has also developed Teacher Competency Framework that includes Information and Communication Technology as one of its 8th domain. It focuses that teachers should be able to make use of ICT for effective teaching and learning. A teacher should be competent enough to utilise integrated learning strategies with the development and use of digital materials according to the needs of the learners. Not only this, teachers should also be able to make mutual communication and collaboration among learners through the means of information technology effective for self-learning. It is also necessary for a teacher to use information and communication technology in learning, assessment, and feedback.

The current School Sector Development Reform (SSDP) has also given the special emphasis on ICT in education. With the expanding role of information and communication technology (ICT) in all areas of life, MoE considers the use and knowledge of ICT essential.

Pedagogical Prospects

ICT can support students to develop deeper understanding of subjects. Students and teachers can use a variety of multimedia, email and web tools, simulations and course/lesson management tools to support deep understanding, collaboration and project planning. ICT can help in improving quality of teaching and learning by providing wider knowledge and information

Ways Forward

Technology can be used for pedagogical, curricular and assessment reforms to support the process of knowledge

creation. However, there are a lot of obstacles in the use of ICT in the classroom in Nepal. First and foremost is the lack of infrastructure, which is the biggest challenge in employing ICTs to facilitate in the teaching-learning process. Basic skills of teachers, necessary to use ICT for pedagogical purpose, is another aspect. Most schools in Nepal lack ICT facilities and qualified teachers. In this backdrop, the government should give priority for the promotion and use of ICT in education sector. Developing ICT-enabled environment in public schools is pre-requisite for this. Promoting collaboration and creating the opportunity is also noteworthy to

consider. If the human resource in schools is encouraged to enhance their ICT skills and develop interactive digital teaching-learning materials, the integration of ICT in education shall be fruitful and sustainable in true sense.

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Use of ICT in the Teaching-Learning Process at the School Level in Sri Lanka

In the context of teaching-learning process in the education system at the school level, with a prerequisite of internet facility, ICT can play a major role not only for the teachers but also for the students.

Teachers can leap out from the ordinary and traditional way of teaching if they could use ICT in the classroom. They could use the internet to find information for preparation of a lesson as well as to perk up their own intellectual minds. While teaching, they could use a number of softwares to make the lesson much more interesting, entertaining and utilitarian. Teachers have various options i.e. using Interactive White Boards (Smart Boards), Multimedia Projectors, Tabs and Smart Phones, Printers as well. Like teachers, students can also use ICT to escalate their knowledge in different ways. They too could use the Internet under the observation and guidance of an adult not only to learn but also to explore certain subject matters and contents. So, the students do not have to depend on teachers totally rather they can gather related information independently using Internet and other social media. Students too have access to many educational software

for making a presentation, prepare a documentation, project work or any other educational activity.

If we consider the use of ICT in the Sri Lankan education system, it expands to a certain considerable extent. Today, even in the rural areas, ICT is used in the small schools as well. Students from all over the island are capable of using Word Processing Software (MS Office), Electronic Spread Sheets, Creating Electronic Presentations and Databases. Most of the students in advanced level are competent in programming. Almost all the students are proficient in browsing the Internet. Some of them are very good at graphic designing – using Photoshop, GIMP and other related software. Even Animations using Flash and Vectorian Giotto, and some of the students are capable of creating simple websites using HTML. Most teachers are also capable of using almost all the above-mentioned softwares to organise and present their respective lessons efficiently, enthusiastically and fruitfully.

Despite above developments, many challenges are posed before improvement of teaching-learning process

in Sri Lanka. Few suggestions are to be taken into account to meet these challenges. To uplift the standard of ICT in Sri Lanka, Broadband networks should be deployed in the school premises. There should be Computers, Interactive White Boards and Multimedia Projectors in the classrooms. Laptops and Internet connections (limited access to the students) should be given to the students and teachers, perhaps below the market price. There should be an acceptable strategy for the integration of ICT within the school system, curricula and the pedagogical activities. Teachers and

students must be trained to use and to be familiar with the pedagogical tools to use in a professional and innovative way. Scarcity of pedagogical content and software should be eliminated. If we could address the above stated challenges, ICT would surely be a prominent element in the process of teaching and learning in the school level.

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The Application of Information and Communication Technologies in Vietnam

Information and Communication Technologies (ICT) is an essential means in teaching of 21st century which provides support for transformation models in improving learning outcomes. To achieve this goal, it is important to consider the local contexts as well as global requirements.

1. Policy and current practice of ICT application for teaching in Vietnam

The Party and the State issued Directive No. 58-CT/TW of the Politburo dated 07/10/2000 on fostering the application of ICT under the influence of industrialisation and modernisation. Prime Minister assigned the mission of 'developing the IT workforce and promoting the ICT application in education and training' (Decision No. 81/2001/QĐ-TTg) to education sector. To work on this mission, schools are being equipped with computer room, multi-purpose room, internet connection, sound recorder, camera, camcorder, scanner, etc., to build the ICT infrastructure. Teachers are encouraged to utilise educational software in teaching such as: Microsoft Office, Cabri, Crocodile, SketchPad/ Geomaster SketchPad, Maple/ Mathematica, ChemWin, Lesson Editor/ VioLet, WWW system, E-learning, etc.

The learning approach following the enGauge model for ICT designs of NCREL, 2003 is utilised to

promote learning, and TPACK model of Schmidt D.A (2009) is applied to develop the professional capacities of teachers through the knowledge combination of content (mathematics, language, etc.), technology (software, internet, etc.), and methodology (active teaching, subject content coverage, etc.).

There are learning and practice tools for students to test their basic knowledge and skills before and after the completion of the session/chapter. Presentation tools (MS PowerPoint, Impress, AHEAD, Prezi) are used by teachers in approaching ideas, inserting text, pictures, and sound into slide-shows during interaction between teachers and students.

Mind maps are used to identify ideas surrounding specific topics, find links between ideas and classifications, and identify problems that can provide suitable solutions, record and present ideas visually. Digital stories are designed with images, combining with text, voice, motion, music, etc., to tell a story. Simulations are utilised when learners examine objects, phenomena through input changes and customisation of simulation; to identify, predict problems, and come up with solutions. Webquest requires learners to use the World Wide Web to learn or synthesise knowledge regarding a particular topic.

2. Challenges of Vietnamese education on the practical application of ICT in teaching

ICT tools cannot fully support teachers in every lecture, as it also requires knowledge for an adequate application and higher-order thinking to combine both traditional and modern teaching methods. Knowledge and skills in ICT for many teachers are still largely limited, and so are their passion and creativity. As a result, they tend to avoid ICT, which further shows that traditional teaching methods are resistant to change in the future. The use of ICT to innovate teaching methods has not been thoroughly studied, leading to its application in the wrong place and time. It is sometimes excessively abused, and becomes counter-productive. The connection and use of the Internet has not been adequately and deeply implemented. Assessment of lessons involving ICT application is still confusing. Policies and management mechanisms are still inadequate and not synchronised and the facilities and equipment for ICT use are lacking, not synchronised with the educational needs.

The professional development of teachers is confined to the eradication of ICT illiteracy for teachers, so they still lack the necessary advanced knowledge, and struggle to use ICT in teaching (this state of affairs occurs in some particular schools, not a common issue).

The widespread use of digital technology and information on the Internet, through application in teaching can also prove to be distracting for students if precautionary measures are not taken. The 4.0 industrial revolution in the fields of biotechnology and artificial intelligence may debilitate some quintessential values such as empathy, compassion, love, cooperation, and communication. The relationship of people, in general, and children, in particular, with smart-phones and computers is a prominent example of how the virtual environment has deprived them of their time to study, relax, read books, play games, socialise, engage in athletics and artistic activities, etc. These challenges will force the education sector to redefine the learner's personality model, develop the learning outcomes, the content of education, and the way we need to respond to the use of ICT.

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News from ANTRIEP Member-Institutions (January-June, 2017)

Australian Council for Educational Research (ACER)

Australia

- Lisa Norris has been appointed to the position of Director, ACER Foundation. This Foundation was established to initiate, develop and manage research-based projects that aim to address the needs of educationally disadvantaged groups in the community.
- ACER's *Australian Journal of Education (AJE)* completed its 60 years in print. The very first edition of the *AJE*, from 1957, is available online.

Bangladesh Campaign for Popular Education (CAMPE)

Bangladesh

- A Sharing Session titled 'Literacy and Life Long Learning in 21st Century: Need Collective Effort' was held at Dhaka on 3 April, 2017 jointly organised by CAMPE and Literacy and CE Forum in cooperation with UNESCO Dhaka
- Honorable Nobel Laureate Kailash Satyarthi called for a 'New World Order' by using the power of the youth in a press briefing on 04 April 2017 at the National Press Club organized by CAMPE and supported by CSEF in which journalists from electronic media, print media, radio and online media have participated.
- A Sharing Session titled "Literacy and Life Long Learning in 21st Century: Need Collective Effort" was held at Dhaka on 3rd April, 2017, jointly organized by CAMPE and Literacy and CE Forum, in cooperation with UNESCO, Dhaka.

National Academy for Educational Management (NAEM)

Bangladesh

- 149th Foundation Training Course (FTC) has been started from May 2017 which will continue till the end of August 2017 to provide training to (General & Tech.) Education Cadre Officers.

International Institute for Educational Planning (IIEP)

Paris

- The Head of the Pôle de Dakar of the International Institute for Educational Planning (IIEP) has announced the latest release of the PôleMag Magazine.
- IIEP has announced the publication of the newest volume in its New Trends in Higher Education series, *Reforms and Changes in Governance of Higher Education in Africa*.
- IIEP has announced registration for an e-Seminar on Transforming Teacher Education to Improve the Learning Outcomes hosted by IIEP Learning Portal
- A closing ceremony was organised by IIEP to award certificate to 15 new graduates from its flagship Advanced Training Programme in Educational Planning and Management on 29 June, 2017
- In collaboration with the Ministry of Education and UNESCO Myanmar, IIEP recently offered a five-day brush-up course to 35 education officers from both the central and state/regional level.

- UNESCO's IIEP Pôle de Dakar has organized a two-day Regional Workshop in Nairobi, Kenya on "The Management of Teacher Deployment in the Basic Education Sector of Central, Eastern and Southern Africa" in May, 2017 with the objective to have a fruitful debate between the fifteen African countries and to capitalize on best practices and innovative tools currently in use.
- IIEP has organized a Strategic Debate by Director of Research for Equitable Access and Learning (REAL) Centre, University of Cambridge about "Towards Progressive Universalism: The Impact of Inequalities on Learning Achievement" on 18 May, 2017.
- The Pôle de Dakar of the IIEP-UNESCO has launched a Web Portal for its Platform of Expertise in Vocational Training for Vocational Stakeholders in Africa.
- An Annual Study Visit by the participants of IIEP Advanced Training Programme in Educational Planning and Management (ATP) took place in Regional Education Authority from 26 February – 3 March, 2017 organized by the French National Commission for UNESCO.
- IIEP has sent a delegation of seven experts in different areas of educational planning to participate in CIES 2017 in March, 2017, whose theme was Problematising (In) Equality.

National Institute of Education (NIE)

Sri Lanka

- General Convocation of the National Institute of Education was held on 31 January, 2017 at Bandaranayake Memorial International Conference Hall. The chief guest of the convocation ceremony was Hon. Prime Minister Mr. Ranil Wickramasinghe.

National University of Educational Planning and Administration

New Delhi, India

- Hon'ble Minister of HRD, Shri Prakash Javadekar has graced the National Conference on Innovations in Educational Administration for District and Block Level Officers and Award Function organised by NUEPA during 5-7 March 2017
- Hon'ble Prof. N.V. Varghese, Director, Centre for Policy Research in Higher Education, has been appointed as Acting Vice-Chancellor of NUEPA in May 2017 after superannuation of Vice-Chancellor, NUEPA, Prof. J.B.G. Tilak who was also Chairperson of ANTRIEP since August 2015.
- The Department of Training and Capacity Building in Education of NUEPA organised three months' XXXIII International Diploma in Educational Planning and Administration (IDEPA) during February-April, 2017.
- An International Seminar on "Innovations in Financing of Higher Education" was organised from 16-17 February, 2017 at NUEPA, New Delhi.
- An International Seminar on "Governance of Universities: Issues and Challenges" was conducted from 23-24 March, 2017 at NUEPA, New Delhi.
- A National Seminar on "Public Sphere and Education: Possibilities and Challenges for Educational Policy", was conducted during 16 -17 March, 2017 at NUEPA, New Delhi.
- An Orientation Workshop on "Framework for Strengthening of School Management Committee under RTE" was organized during 20-25 March, 2017 at ISEC, Bengaluru, Karnataka by NUEPA, New Delhi.
- A two day Policy Seminar on "Indigenous Knowledge System and Youth Empowerment" was conducted at NUEPA, in March, 2017.

- A Training Programme on “Using Quantitative Indicators in Planning School Education” organized for Joint Directors/Statistics In-charge from different states of India was held during 20 - 24 March, 2017, NUEPA, New Delhi.
- A three day Programme on “Gender Budgeting in Education” was held in March, 2017 at Bengaluru, Karnataka with Senior Level Educational Planners and Administrators from Education Departments from different States/UTs of India.
- An Orientation Programme on “Managing Diversity and Equity in Universities and Colleges” was organized during 27 - 31 March, 2017 at NUEPA, New Delhi.

Research Centre for Educational Innovation and Development (CERID)

Nepal

- A National Seminar on “Letter Grading System: Implication and its Impacts in Higher Education” was organised by CERID at Kathmandu on to discuss the issues, confusions and un-clarity of LGS guideline 2072 and to identify ways and means of overcoming the confusions.

Institut Aminuddin Baki (IAB)

Malaysia

- Tenth Policy Seminar and Annual Meeting was conducted at the IAB campus of Genting Highlands, Malaysia on the theme of “*Demographic Change: What are the Implications for Education Policy and Planning?*” during 3-5 May, 2017.
- Hon’ble Prof. Hj. Zainal Aalam bin Hassan has joined as the new Director of Institut Aminuddin Baki, Malaysia. He has become Chairperson of the ANTRIEP after Prof. JBG Tilak, former Vice Chancellor of NUEPA, New Delhi.

SEAMEO-INNOTECH

Philippines

- SEAMEO-INNOTECH partnered with the University of the East College of Arts and Sciences-Caloocan CAMANAVA Studies for its International Conference on ‘Emerging Discourses and Issues in Sustainable Development’ held on 3-5 February, 2017 at the University of the East Caloocan Campus.
- INNOTECH, through its Solutions Development Unit, conducted a workshop in Leyte to develop the Guidebook on Alternative Delivery Modes (ADMs) for Education in Emergencies (EiE), 30 January to 4 February. The 6-day workshop focused on developing key sections on ways of sustaining learning after a calamity, may it be man-made or natural, by implementing ADMs.
- SEAMEO INNOTECH celebrated its 47th year in full colours as staff and partners recognised another successful year with the theme “Color My World,” on 27 January, 2017.

Vietnam National Institute of Educational Sciences (VNIES)

Vietnam

- The consultation workshop was organised in January 2017 by Centre for Analysis and Forecasting (under Vietnam Academy of Social Sciences) in cooperation with Institute of Research for Development (IRD/France) on “Leaving no one behind: the key role of household business and informal sector” under the NOPOOR project. The workshop was comprised of about thirty participants, including Xavier Oudin, NOPOOR coordinator, and Laure Pasquier- Doumer, scientist of UMR 225 DIAL.

ANTRIEP Member Institutions

1. Academy of Educational Planning and Management (AEPAM), Ministry of Education, Taleemi Chowk, G-8/1, P.O. Box 1566, ISLAMABAD, Pakistan (<http://aepam.edu.pk>)
2. Australian Council for Educational Research (ACER), 19 Prospect Hill Road, Private Bag – 55, Camberwell, Melbourne, VICTORIA-3124, Australia (www.acer.edu.au)
3. Balitbang Dikbud Centre for Policy Research (Puslit Penelitian), Office for Educational and Culture Research and Development (Balitbang Dikb) Ministry of Education and Culture, Jalan Jenderal Sudirman, Senayan, JAKARTA – 12041, Indonesia.
4. Bangladesh Rural Advancement Committee (BRAC) 75, Mohakhali Commercial Area, DHAKA – 1212, Bangladesh (www.brac.net)
5. Campaign for Popular Education (CAMPE), 5/14, Humayun Road, Mohammadpur, DHAKA – 1207, Bangladesh (www.campebd.org)
6. Centre for Multi-Disciplinary Development Research (CMDR), D.B. Rodda Road, Jubilee Circle, DHARWARD - 380 001, Karnataka (INDIA) (www.cmdr.co.in)
7. Centre for Education Leadership Development, (CELD), National Institute of Education (NIE), Meepe Junction, Padukka, Sri Lanka (www.nie.lk)
8. Institute Aminuddin Baki (National Institute of Educational Management), Ministry of Education, Sri Layang 69000, Genting Highland, PAHANG, Malaysia
9. International Institute for Educational Planning (IIEP), 7-9 rue Eugene-Delacroix, 75116 PARIS, France (www.iiep.unesco.org)
10. Korean Educational Development Institute (KEDI), 92-6 Umyeon-Dong, Seocho-Gu, SEOUL 137-791 KOREA, (www.kedi.re.kr)
11. National Academy for Educational Management (NAEM), Dhanmodi, DHAKA – 1205, Bangladesh (www.naem.gov.bd)
12. National Centre for Educational Development (NCED), Sanothimi, BHAKTAPUR 2050, Nepal (www.nced.gov.np)
13. National Council of Educational Research and Training (NCERT), Sri Aurobindo Marg, New Delhi - 110 016 (INDIA) (www.ncert.nic.in)
14. National Institute of Education (NIE), 123, Preah Norodom Blvd, PHOM PENH, Cambodia. (www.nie.edu.kh)
15. National University of Educational Planning and Administration (NUEPA), 17-B, Sri Aurobindo Marg, New Delhi –110016, India (www.nuepa.org)
16. Research Centre for Educational Innovation and Development, Tribhuvan University, P.O. Box 2161, Balkhu, Kathmandu, Nepal, (www.cerid.org)
17. Shanghai Institute of Human Resource Development (SIHRD), 21 North Cha Ling North Road SHANGHAI - 200 032, China
18. South-East Asian Ministers of Education Organisation Regional Centre for Educational Innovation and Technology, SEAMEO INNOTECH P.O. Box 207, Commonwealth Avenue, U.P. Diliman, Quezon City 1101, Philippines (www.seameo-innotech.org)
19. State Institute of Educational Management & Training (SIEMAT), 25 P.C. Banerjee Road, Allenganj ALLAHABAD, Uttar Pradesh, India
20. The Aga Khan Education Service, Pakistan (AKES,P) House No.3 & 4, F-17/B, Block VII KDA Scheme 5, Clifton, Karachi-75600, Pakistan (www.akdn.org/akes)
21. The Aga Khan University-Institute for Educational Development, (AKU-IED), 1-5/B-VII, F. B. Area Karimabad, P.O. Box No.13688, Karachi-75950, Pakistan (<http://www.aku.edu>)
22. Vietnam Institute of Educational Sciences (VNIES) 101 Tran Hung Dao,- Hoan Kiem, Hanoi, Vietnam (www.vnrw.vnies.edu.vn)

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