

Central Asia Symposium on ICT in Education 2015

Fostering an Enabling Environment for Teacher
Innovation: From Policy to Practice

Outcome Document

English version

UNESCO Asia-Pacific Regional Bureau for Education



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Introduction

UNESCO Asia-Pacific Regional Bureau for Education (UNESCO Bangkok) has organized the Central Asia Symposium on ICT in Education (CASIE) since 2011 to provide a sub-regional platform for the Member States to collectively deliberate on possible solutions to the issues at hand, with a particular focus on integrating technologies into the education systems. In 2015, UNESCO Bangkok collaborated with the National Commission for UNESCO of the Kyrgyz Republic, UNESCO Almaty, UNESCO Tashkent, the Korea Education and Research Information Service (KERIS), the UNESCO Institute for Information Technologies in Education (IITE), and Intel to hold CASIE 2015 in Bishkek, Kyrgyz Republic from 7 to 9 July.

Building on the discussions from the previous year's Symposium, CASIE 2015 continued to examine policies, strategies, and initiatives to address the growing need for systematic teacher education and professional development in Central Asia (CA), as well as the effective integration of ICT in teaching and learning. Centred around the theme of "**Fostering an Enabling Environment for Teacher Innovation: From Policy to Practice**", CASIE 2015 took into account an array of factors that enable pedagogues to utilize ICT in an educationally relevant and holistic manner.

The Symposium also aligned the policy discussions with the [Education 2030 Agenda](#)'s proposed target on teachers (in May 2015), which stated that "efforts must be made at all levels and in all educational settings to ensure that all learners are taught by qualified, professionally-trained, motivated, committed and well-supported teachers who use appropriate pedagogical approaches".¹ It is also noteworthy that the Bangkok Statement emphasizes the huge potential of ICT in achieving the Education 2030 agenda.

As pointed out during CASIE 2013², while taking into account an array of factors that enable teachers to utilize ICT in effective ways, some key questions need to be considered: Have competency standards been clearly defined to guide teacher training curriculum and practice? Have these been clearly articulated among stakeholders to enable proper implementation and smooth transition from pre-service to in-service? What types of resources and support are needed to motivate teachers? Is data being collected and used appropriately to support teaching practice? How can we work together to replicate promising initiatives and overcome challenges discussed during CASIE 2014³, among others?

The objectives of CASIE 2015 were:

- 1) To provide a platform for national education policy makers, practitioners and development partners to share issues and challenges that CA countries are facing in integrating ICT into the education systems, with particular emphasis on the use of ICT for teacher empowerment with and for technology;
- 2) To promote collaboration and partnerships among the CA countries in the identification of solutions in response to similar issues and challenges toward effective and efficient use of ICT in education;

¹ Bangkok Statement available at: http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Beirut/pdf/Bangkok_Statement-en.pdf

Muscat Agreement available at: <http://www.uis.unesco.org/Education/Documents/muscat-agreement-2014.pdf>

² CASIE 2013 Outcome Document available at: http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2013/Central_Asia_Symposium_on_ICT_in_Education_2013_-_Outcome_Document_English_-_Final.pdf

³ CASIE 2014 Outcome Document, pp 9-18.

- 3) To provide an opportunity for all participating Member States to formulate a strategic plan for utilizing the CASIE platform for the next 3-5 years, outlining the desired measures for support and collaboration.

Ministry of Education officials from six countries, namely Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, and Uzbekistan, , and, were invited to engage in a multi-directional dialogue to enable and support efforts in building national capacity in the use of ICT in education at all levels. Almost 70 participants took part in the event, with delegates from five countries eventually attending, namely: Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, and Uzbekistan, comprising of Ministry of Education officials (17 country delegates), various education stakeholders (22), international experts and speakers (12), and representatives of UNESCO offices (7), as well as local support staff (10+) (see Annex A for the list of participants).

With the theme of “Fostering an Enabling Environment for Teacher Innovation: From Policy to Practice”, CASIE 2015 participants took stock of policy options and promising practices that promote teacher innovation through the use of ICT. The Symposium addressed various enabling factors, including 1) comprehensive teacher development policies and programmes for quality and relevance, 2) the importance of school leadership in creating a conducive and sustainable environment for teachers, 3) the necessity of quality digital resources for teachers, and 4) the role of EMIS and education data in enhancing policy and supporting teachers.

The local and international speakers came from more than ten countries within and beyond the region. Country presentations, plenary sessions, the Gallery Walk, workshops, and the study visits featured international and local experts and various programme implementers who shared their research findings, practical experiences and insights, lessons learned, recommendations and good practices in creating enabling environments for teacher innovation through relevant ICT policies, programmes and resources. The Roundtable Discussion (RD), likewise, served as an opportunity for the delegates to discuss individual country plans for CASIE and ways to effectively utilize this platform, voice their national challenges and strengths for possible partnerships and collaborations, as well as request for support from local and international organizations in addressing these obstacles, while helping shape each other’s potential in relation to the effective and efficient use of ICT in education.

This document is a synthesis of the discussions and deliberations that took place during the Symposium.

Regional Context

Approximately 4.3 billion people occupy the Asia-Pacific region, constituting more than 60 percent of the world’s total population (UNESCO, 2015a, p. 1). With the rapid economic, social and demographic, technological, and political changes, this region continues to face challenges and make strides in mitigating its strengths in order to improve the quality of life at all levels.

As an important part of this region, CA has made considerable progress in the education sector, and continues to propel its opportunities to bring about accessible and quality education. Albeit, challenges remain and arise, and CA is not an exception to universal as well as unique issues of adapting to the rapidly changing expectations of teachers and students.

This section provides a general overview of the progress that the CA countries have made, including their performance against the international goals and standards, as well as the remaining bottlenecks in education and ICT.⁴

General characteristics

CA has inherited a rich history, and has been home to many ethnic groups, religions, and languages. As evidenced by Table 1 below, the diversity within the region is grand. While Kazakhstan is the largest country by area, its population together with Mongolia is the lowest. Tajikistan is the smallest country by area but remains to be the second densest after Uzbekistan. Urban versus rural populations also vary tremendously among countries; for instance, 70 percent of population in Mongolia reside in urban areas compared to only 27 percent in Tajikistan. The region is also characterized by drastic differences in national wealth, ranging from more than 20,000USD of GNI per capita in Kazakhstan to only 2,500USD in Tajikistan.

Table 1
General characteristics of the Central Asian countries

Country	Population size (millions, 2013)	Area of Country (1,000km ² , 2013)	Population density (people per km ² , 2013)	Urban population (% 2013)	Life Expectancy (years, 2013)	GNI per capita, PPP (current international USD, 2013)
Kazakhstan	17.0	2,724.9	6.3	53	70	20,680
Kyrgyzstan	5.7	199.9	29.8	35	70	3,100
Mongolia	2.8	1,564.1	1.8	70	68	10,560
Tajikistan	8.2	142.6	58.6	27	67	2,500
Turkmenistan	5.2	488.1	11.2	49	65	13,010
Uzbekistan	30.2	447.4	71.1	36	68	5,460
World	7,124.95	134,324.7	54.9	53	71	14,483

Source: The World Bank. 2015. World Development Indicators 2015.

In regard to the overall status and progress in the Education for All movement, the CA region has been consistently making progress in areas such as primary school enrolment and gender parity. Some of the key indicators related to the main EFA goals are presented in Table 2. Although there have been debates on the accuracy of the data, the CA countries represent commendable rates of overall youth and adult literacy, which is higher than 99%. The female illiterate population has been decreased by 51 percent, while adult literacy is almost universal. Furthermore, almost all five countries have reported to have achieved a gender parity index (GPI) of 1⁵.

⁴ For the overview of individual Central Asian countries with their general characteristics and education systems, as well as ICT data, refer to the CASIE 2014 Outcome Document.

⁵ The GPI is an indicator that is commonly used to assess gender differences through the computation of the ratio of female-to-male values. Gender parity is reached when GPI is between 0.97 and 1.03.

Table 2
Education Indicators for Central Asia

		Kazakhstan	Kyrgyzstan	Mongolia	Tajikistan	Turkmenistan	Uzbekistan
Gross enrolment ratio (% , both sexes)	Pre-primary (2015)	60.37	25.33 [2014]	85.87 [2012]	10.65	62.85 [2014]	25.29 [2011]
	Primary (2014)	110.56 [2015]	107.67	101.68	98.19 [2015]	89.37	89.37
	Secondary (2014)	109.11 [2015]	90.78	90.72	87.89 [2013]	85.34	110.29 [2011]
	Tertiary (2014)	46.04 [2015]	47.33 [2013]	64.27	27.37 [2015]	7.98	8.90 [2011]
Gross enrolment rate/Gender Parity Index (GPI)	Pre-primary (2014)	1.00	1.00	1.01 [2012]	0.91 [2015]	0.97	1.00 [2011]
	Primary (2014)	1.00 [2015]	0.99	0.98	1.00 [2015]	0.98	0.98 [2011]
	Secondary (2014)	1.03 [2015]	1.01	1.03	0.90 [2013]	0.96	0.99 [2011]
	Tertiary (2014)	1.28 [2015]	1.29 [2013]	1.44	0.67 [2015]	0.64	0.64 [2011]
Adjusted net enrolment rate (ANER)	Primary, total (2015)	99.87	97.98 [2014]	95.62 [2014]	98.11	NA	94.97 [2011]
Out of school children rate (% , both sexes)	Primary (2015)	0.1	2.0 [2014]	4.4 [2014]	1.9	NA	5.0 [2011]
	Lower secondary (2014)	0.3 [2013]	8.3	0.4	5.6 [2011]	NA	1.9 [2011]
Adult literacy rate, population 15+ years (% , both sexes, 2015)		99.79	99.52	98.38	99.77	99.69	99.59
Pupil-to-teacher ratio	Primary (2015)	16.2	25.3 [2014]	27.2 [2014]	22.3	NA	15.6 [2011]
	Secondary (2014)	7.5 [2015]	13.0	13.7	15.4 [2011]	NA	13.3 [2011]
Government expenditure on education (% of GDP)		2.89 [2014]	6.78 [2013]	4.61 [2011]	4.02 [2009]	3.05 [2012]	35 [2011] ⁶

Sources: UNESCO UIS Data Centre

⁶ Republic of Uzbekistan Education Sector Plan for 2013-2017, p. 11.

In terms of achieving universal primary education (UPE), although the overall adjusted net enrolment ratio (ANER) of the region is 95 percent, progress of each country has been uneven. Of the four countries that have available data, only Kazakhstan has reached UPE with a primary ANER of 99.87%, while the rest are doing relatively well with ANERs above 90%. Despite the declining numbers of out-of-school children in the region, there are still about 220,000 children (in 2012) who are not receiving the basic education they need. Notably in Tajikistan, the number of out-of-school children had been steadily declining from 18,001 in 2005 to 7,09 in 2012, but increased by more than three times to 26,792 in 2014. Besides enrolment into primary education, facilitating completion is another key element towards achieving UPE. Considering children from poorer families or rural areas face higher risks of dropping out, a more concerted effort is needed to address the needs and concerns of the remaining out-of-school groups so as to successfully reach the marginalized (UNESCO, 2014a, 2014b).

With the region's attainment of relatively high ANERs, the next crucial step would be to assess the quality of education to ensure high levels of learning achievement. Progress in education quality depends on having sufficient teachers, and ensuring that they receive relevant training and support. Progress in reducing the pupil-to-teacher ratio (PTR) has been modest, which could possibly be the consequence of decreasing government expenditure on education. However, of the four countries with available data, the PTRs remain below the global average of 24. In the case of Uzbekistan, a significant decline in primary PTR over the decade – 21.3 in 2002 and 15.6 in 2011 – has been reported.⁷

When it comes to quality of teaching and learning, PTR is only one of the key indicators; one of the more important arguments would be whether these teachers who are put in practice have been adequately trained and qualified to teach. Some countries, such as Kyrgyzstan, have a higher ratio of qualified secondary school teachers than their primary level counterparts, while in Mongolia it is easier to hire trained primary school teachers than secondary school ones (UNESCO, 2015a, p. 35). More specifically, the data collected in 2012 show that more than 95% of primary school teachers in Uzbekistan and Mongolia have been trained and qualified according to the nationally required level of education and training. The other countries have also shown evident progress, reaching 72% and 90% of trained primary school teachers in Kyrgyzstan and Tajikistan, respectively. Regarding secondary school teachers, Mongolia and Uzbekistan have reached almost 100% of trained teachers in 2012, with 20% less in Kyrgyzstan (at 80%) (UNESCO, 2015a, p. 36). CA education systems consist predominantly of female teachers at the primary level, as is the case in Kazakhstan and Mongolia (UNESCO, 2015a, p. 33).

As per higher education and gender equity, the prospects in CA look promising. According to UNFPA (2010, p. 15), "although the educational attainment of men is initially higher, it increases at a slower rate than that of women." For example, by 2030, more women in Kazakhstan might have tertiary education than men. In regard to Technical and Vocational Education and Training (TVET), the region has witnessed a 6 percentage increase in TVET enrolment in 2012, although more due attention is needed to TVET student and teacher support and guidance (UNESCO, 2015b, p. 10).

Figure 1 shows a comparative view of the Education for All achievements among different sub-regions in the Asia Pacific, including CA.

⁷ Adapted from UNESCO ICT in Education e-newsletter, Sub-Regional Corner for Central Asia. The full article is available at: <http://www.unescobkk.org/education/ict/online-resources/databases/ict-in-education-database/item/article/a-review-of-education-and-ict-indicators-in-central-asia-by-unesco-bangkok/>

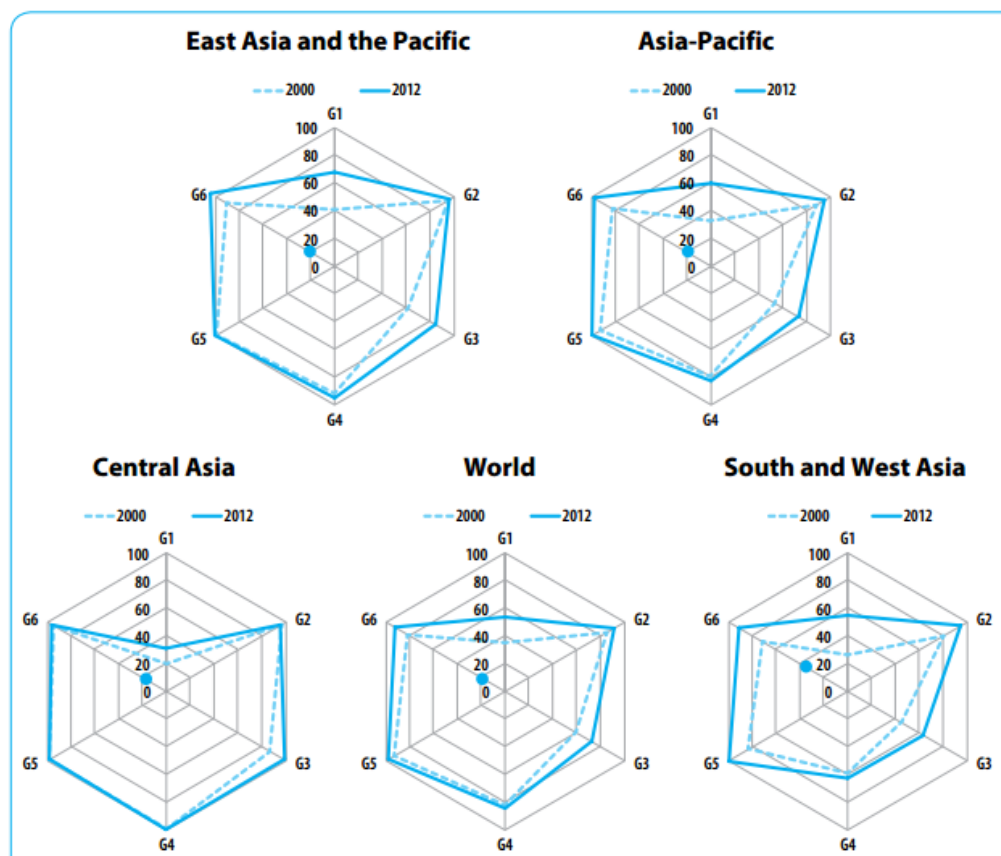


Figure 1. Global and regional progress synthesis of the six EFA goals between 2000 and 2012

Note: Goal 1 is represented by the gross enrolment ratio (GER) in pre-primary education, Goal 2 by the adjusted net enrolment rate (ANER) at the primary level, Goal 3 by the GER at the secondary level, Goal 4 by the adult literacy rate, Goal 5 by the gender parity index (GPI) of the ANER at the primary level and Goal 6 by the gross intake rate in the last grade of primary (proxy of completion). The red dot represents the pupil-teacher ratio (PTR) of primary education in Goal 6.

Source: UNESCO Institute for Statistics Data Centre, July 2014.

Overall, as per the EFA Development Index (EDI) measured in 2012, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Mongolia rank at *high EDI*, in other words “have achieved or are close to EFA as a whole”, which includes components such as primary enrolment ratio, adult literacy rate, gender index, and the survival rate to grade 5 (UNESCO, 2015b, p. 231). As governments recognise the critical role of education in socio-economic development and national prosperity, there is hope that the region will continue to make significant strides in ameliorating their education systems.

ICT use in education

In the past decade, CA has accepted the inevitable reality of ICT as a fundamental necessity for work in the 21st century. Consequently, governments have adopted ICT development policies and programmes, with a predominant hope that ICT will boost future employment for young generations, as well as place these countries at a higher rank in the international education arena.

According to ITU and UNESCO UIS data (Table 3), the six CA countries have high mobile subscription rates, with the highest penetration level evident in Kazakhstan, followed by Turkmenistan and Kyrgyzstan,

respectively. In Uzbekistan and Tajikistan, the increase in mobile subscriptions has been observed at a much slower pace.

Kazakhstan and Uzbekistan have the highest number of individuals using the Internet, with the largest percentage of households with the Internet, which is higher than the world average. The proportion of schools with Internet access is also highest in Kazakhstan, at 97 percent. In terms of computer-to-pupil ratio, the highest number of students per one computer is in Kyrgyzstan. It is important to note that computer provision at schools in CA tends to be concentrated at laboratories due to the limited financial and technical resources (UNESCO-UIS, 2014, p. 25).

Table 3
ICT infrastructure status in the Central Asian countries

Country	Mobile-cellular subscriptions per 100 inhabitants (2014)*	Active mobile-broadband subscriptions per 100 inhabitants (2013)* ⁸	Fixed-broadband subscriptions per 100 inhabitants (2014)*	Percentage of individuals using the Internet (2014)*	Percentage of households with Internet access (2014)* ⁹	Pupil-computer ratio**	Proportion of schools with Internet access (%)**
Kazakhstan	168.62	56.6	12.93	54.89	49.4	18	97
Kyrgyzstan	134.46	22.7	4.16	28.30	7.2	57	6
Mongolia	105.06	18.2	6.85	27.00	21.0	18	91
Tajikistan	95.13	NA	0.07	17.49	NA	NA	NA
Turkmenistan	135.78	NA	0.04	12.20	NA	NA	NA
Uzbekistan	73.79	20.3	1.33	43.55	NA	NA	NA
Asia Pacific	90.6	29.7	8.3	33.8	36.3	NA	NA
World	96.1	37.2	10.3	40.6	43.9	NA	NA

Sources: *ITU Statistics ** UNESCO UIS ICT in Education in Asia (2014)

With the recognition of ICT as a powerful tool in education, the CA countries have developed national policies and plans to integrate ICT within teaching, learning, and management in formal contexts. As presented in Table 4¹⁰, the five countries have an ICT component in education policy or a National ICT in Education Masterplan. All countries implement the general teacher competencies, but diverge at the ICT competency standards. For example, only Kazakhstan, Mongolia and Uzbekistan (in the process) have the ICT competency standards for teachers.

⁸ The year of data for Asia Pacific: 2014; World: 2014

⁹ The year of data for Kazakhstan: 2011; Kyrgyzstan: 2012; Mongolia: 2013

¹⁰ This information was taken from the CASIE 2015 pre-symposium survey. The participating country delegates were invited to respond to the online survey between 16 June and 2 July 2015. The survey was conducted in English and Russian, both online and offline. Five countries responded: Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Mongolia.

Table 4

Status of ICT in education policy and teacher ICT competency standards in Central Asia

	ICT Component in Education Policy	National ICT in Education Masterplan	Teacher ICT Competency Standards		
			Existing general/ICT competencies	Pre-service training	In-service training
Kazakhstan	✓	✓	<ul style="list-style-type: none"> ▪ General ▪ ICT 	✓	✓
Kyrgyzstan	✓		<ul style="list-style-type: none"> ▪ General 	✓	
Mongolia	✓		<ul style="list-style-type: none"> ▪ General ▪ ICT 	✓	✓
Tajikistan		✓	<ul style="list-style-type: none"> ▪ General (by subject) 		
Uzbekistan		✓	<ul style="list-style-type: none"> ▪ General ▪ ICT (in the process) 	✓	✓

Often, the emphasis of the national strategies falls on the ICT infrastructure and general informatization of the education systems. However, from Figure 2, it is also evident that CA countries are moving toward the utilization of ICT for specific educational goals, such as sustaining quality and relevance of the curricula, developing ICT knowledge and skills, training and supporting pedagogues, producing competent students, providing access and equity within education, collecting data and strengthening education management.¹¹

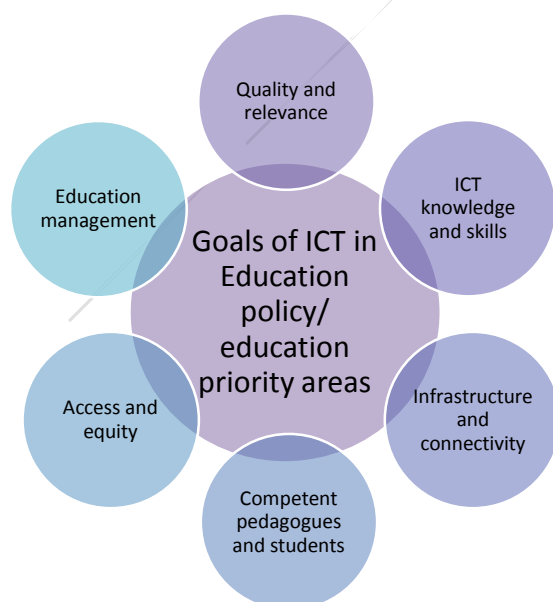


Figure 2. Goals of ICT in education policy, and education priority areas in Central Asia

¹¹ This information was taken from the CASIE 2015 pre-symposium survey.

A relatively recent phenomenon in the ICT in education landscape in CA has been the development of EMIS and data collection, due to the acknowledgement of their importance and necessity for accurate and timely data to inform educational planning and policy development. For example, Kazakhstan, Tajikistan, and Uzbekistan have EMIS already set up in place. Kazakhstan and Tajikistan collect the data at teacher, school, district, and national levels, while Uzbekistan collects it at teacher level only. In Kyrgyzstan and Mongolia EMIS is in the process of development and implementation.¹²

Additionally, more attention is being paid to ICT use throughout the school curriculum, especially in regard to digital and open resource content, with consideration of the multilingual settings. Albeit, this trend has been less fruitful in some countries, due to the lack of resources and quality assurance mechanisms in ensuring the relevance and adequate content of these resources.¹³

In retrospect to the ICT in education goals and educational priority areas, some of the generally observed challenges among CA countries include the lack of ICT availability at schools and connectivity to the Internet, absent or inadequate ICT competencies among teachers, as well as a general lack of training opportunities, and a limited budget for ICT integration, to name a few. The lack of learner-centred pedagogy reflects on the student outcomes, as well as points to the need for training and support provided to teachers to overcome this challenge (UNESCO, 2015b, p. 205). The relevance of the general curricula is not always assured, and school subjects do not always reflect the necessary skills and knowledge necessary for the 21st century. All in all, when some of the countries still face basic education challenges, i.e. appropriate and timely teacher salaries, lack of funds for general training, or provision of learning materials, effective utilization of ICT in education may come as a secondary priority.

Current Issues and Challenges in Integrating ICT into Education in Central Asia

This section identifies some of the pressing needs and remaining challenges that the education systems of the CA countries are facing. The sub-region is trying to combat not only current and future issues within the education systems, but also to transform the inheritances of the Soviet past and its outdated approaches. Emphasis is placed on the issues at hand in regard to integrating ICT into teaching and learning to achieve the respective national education goals. The sources of the data for this section include the CASIE 2015 presentations, and information shared during the event, as well as the findings from the pre-symposium survey.

As CASIE 2015 was a continuation to the theme of CASIE 2014, many of the pertaining issues and challenges are still in place, and their discussion remains to be relevant. Analysis of the pre-symposium survey findings and deliberations during the event re-emphasized that the common aim across the participating countries for using ICT in education continues to be focused on improving access to, quality of, and equity in education. With this aim in mind, the delegates identified the current and continuing challenges in integrating ICT into teaching and learning as follows: **1) topographical barriers; 2) inadequate ICT infrastructure and connectivity; 3) shortage of and low teacher professional capacity with inconsistent monitoring and evaluation; 4) lack of proper incentives and motivation for teachers;**

¹² This information was taken from the CASIE 2015 pre-symposium survey.

¹³ This information was taken from the CASIE 2015 pre-symposium survey, and country presentations.

5) insufficient educational content and open education/digital resources; and 6) lack of funds and coordination.

Topographical barriers

As mentioned in the [CASIE 2014 Outcome Document](#), access to education is an ongoing challenge that governments have been trying to address. Although some progress has been evident in Kazakhstan and Kyrgyzstan, access to pre-primary education is still an ongoing challenge for CA, and is the lowest in Asia-Pacific, partly due to the fact that more than 50% of the region's population are located in rural areas (UNESCO, 2011, 2014, 2015a). For example, Kyrgyzstan faces a large rural-urban divide, especially in regard to secondary education. Additional deterrents for families and children present themselves in having to purchase required school uniforms, or textbooks, which make sustainable education unaffordable and unattainable (UNICEF, 2010). Geographical barriers in countries such as Mongolia or Kyrgyzstan contribute to lower access to schools, and act as disincentives for teachers. Often, Internet service providers are demotivated to operate in rural areas with small populations, while school budgets tend to also be very limited, and rely on development partners whose funding is not always guaranteed (UNESCO-UIS, 2014, p. 28).

Inadequate ICT infrastructure and connectivity

Throughout the Symposium, one of the main continuing key barriers identified by the country delegates and local speakers was the inadequate infrastructure and connectivity in schools. Notably, almost all countries in CA face this challenge due to the lack of funds, predominantly remote and rural areas, and diverse terrains and vast territories. Although the percentage of individuals using the Internet has generally dramatically increased since the year 2000 (as shown in Table 3 on p. 7), equal access to Internet still remains a grand challenge for many populations in the region.

Kazakhstan enjoys almost a 100% connection rate to Internet at schools, while Kyrgyzstan struggles to provide universal connectivity due to the mountainous landscapes throughout most of the country. Meanwhile, Uzbekistan plans to implement full provision of modern ICT classrooms for general schools as well as full connectivity to Internet in 2015.

This issue of ICT infrastructure and connectivity was also emphasized in the previous CASIEs, both in 2013 and 2014. For instance, Mongolia has acknowledged its need to boost up infrastructure, provide computers to teachers, and connect all students to a network at CASIE 2015. In response to this challenge, the Government of Mongolia has initiated the "New Century Education" project on ICT infrastructure in order to provide fiber optic connectivity and local area network for each school and kindergarten in the country.

Unanimously agreed by the delegates, providing universal access to the Internet and its resources could benefit the CA countries, given the topological barriers, and provide useful tools to the students and teachers, allowing them to become active participants and creators of knowledge in on- and off-line spaces.

Shortage of and low teacher professional capacity with inconsistent monitoring and evaluation

It is widely known that the quality of any education system is only as good as the quality of its teachers. As teachers are the main drivers of transformation, it is critically important to provide them with the relevant, accessible and quality training, especially in order for them to utilize ICT in innovative ways. As one of the delegates from Kazakhstan shared during the country level reporting session, "teachers'

professional personality today should be ICT-based”, underlining the increasingly important ICT component of what comprises the teaching profession.

Even though students might be attending schools, their knowledge and skills acquisition might not be at a desirable level. For example, In Kazakhstan, rural students tend to perform worse than their urban counterparts, restating the critical issue of teacher quality in these areas (UNICEF, n.d., p. 3). Student performance and skills development, as well as overall progress in the quality of learning depend greatly on hiring and retaining capable, trained, and knowledgeable teachers, who receive ongoing support in favourable environments. However, in reality, teachers do not receive proper training, often finding themselves in a “methodological vacuum” (Shamatov and Joldoshalieva, 2010, p. 10). This challenge thus reflects on the student learning outcomes, where, for example, Kazakhstan and Kyrgyzstan have scored below the OECD average in all of the three subjects (UNESCO, 2015a, p. 37).

The preliminary and continuous provision of teacher professional development is thus undeniable, coming hand in hand with proper, thorough and systematic monitoring mechanisms for both training outcomes and classroom work. As this was the identified challenge in the CASIE 2014 Outcome Document, “systematic policy guidance” in defining the necessary teacher competencies should be in place in order to develop into and guide training in light of the skills and qualifications required. Additionally, it is important to define and follow the proper paths in which such “training is recognized, incentivized, reinforced and monitored.”¹⁴

As shown in Table 4 (p. 8), Mongolia, Uzbekistan and Kazakhstan have developed national ICT competency standards for teachers. However, the other countries have yet to develop these to systematically adapt and guide teacher training and professional development. Although Kazakhstan uses a cascade methodology for the training of teachers, with a networked community, as other countries, including Mongolia and Uzbekistan, it requires additional support in updating existing teacher competencies as well as developing proper indicators for monitoring and evaluation of the acquired skills.

In order to address this challenge, the Government of Mongolia plans to support teachers in their professional development through a human resource management subsystem of the education sector information system. In the meantime, Uzbekistan has been conducting annual professional development courses in ICT since 2011, while Kyrgyzstan plans to develop standards for utilizing ICT in teaching.

However, countries shared that being equipped with national standards and guiding policies is not sufficient to successfully carry out and implement them. The question of monitoring and evaluation of the skills acquired during training for teachers as well as in-service teacher performance in regard to the set competencies remain to be challenging. Although all countries have some form of a monitoring system for the teacher competencies acquired during training, the quality, rigorousness of, as well as the best approaches toward monitoring and evaluation of this relatively new phenomenon (ICT competency standards for teachers) is still of question.

To address this, Kyrgyzstan mentioned the planned integration of e-government (AVN system) to have all schools as well as higher education institutions connected in the country. Additionally, it has formed an IT bank of information/data for all education levels, available online, providing information of every student and teacher.

¹⁴ CASIE 2014 Outcome Document, p. 9.

Lack of proper incentives and motivation for teachers

As is the situation globally, CA is not an exception to the struggle with the heavy teacher workload and lack of structural incentives. With these two factors, promoting innovative and progressive pedagogy becomes an even bigger challenge, where teachers find themselves unmotivated and burdened by the need to utilize ICTs, especially in ways that go beyond the basic ICT skills, in addition to their already overloaded schedules and tasks. With insufficient or often disjointed training provided, ICT introduction in schools in such contexts requires teachers to actually work more and harder, if they wish to utilize it effectively, hence disincentivizing the use of ICT in the classroom.

Additionally, the lack of structural incentives to ensure clear career paths further hinders teachers from being motivated in utilizing ICT in the education process. The importance of involving teachers in national education and teacher policy development was also stressed during the Symposium. In Uzbekistan teacher salary has been increased by five times between 2005 and 2009, and continues to do so, with the average annual pay ranging between \$4,200 and \$4,800 (Republic of Uzbekistan Education Sector Plan for 2013-2017, 2013, p. 59; UNESCO, 2015c, p. 20). Mongolia has increased teacher salaries by 14% in 2014, and the government has planned to increase the average salary of secondary school teachers to 350000 MNT (around \$175) by 2015 (Master Plan to Develop Education of Mongolia in 2006-2015, 2006, p. 70; UNESCO, 2015c, p. 20). However, although visible strides have been made, teacher salaries have not always reflected the workload and hours spent in preparation for the coursework, or provided an opportunity for promotion or increase in salary despite undergoing the necessary training. In Kyrgyzstan for example, almost 20% of teachers leave their jobs within the first year of employment (Education Development Strategy of the Kyrgyz Republic for 2012-2020, n.d., p. 15). Moreover, seldom is consistent, sufficient and relevant school support provided by administrators and leaders to continuously monitor teachers and their needs, and motivate them in creating an enabling environment for ICT-enhanced pedagogy and consequent 21st century learning through teacher communities.

Insufficient educational content and open educational/digital resources

Widely discussed during the Plenary Session 3, the Gallery Walk as well as Q&A, the general consensus was that CA would greatly benefit from developing, sharing, and integrating digital educational content and open educational resources (OER) in national languages. OER will support teachers and students to enhance the educational process, address the issue of lacking textbooks, and hopefully ease the teachers' workload. Increased access to OER can also promote more flexible learning opportunities, and create prospects for pedagogical innovation.

The consent among the CA republics remains unanimous: teachers need quality educational resources, aligned with and curated for the national curriculum content, and digitized as open forms. The delegates from Mongolia acknowledged that the development of digital content requires invested cooperation between the countries in the region. In light of this, Kazakhstan has developed 14,500 educational resources for secondary education, as well as computer games for primary education, and e-textbooks. The country is also engaging in utilizing mobile and other smart technologies for education and blended online learning.

Lack of funds and coordination

An issue that remains to be persistent in the region, serving as a contributing factor to much of the other challenges in education in CA, is the lack of available funds for educational projects, accompanied by the lack of coordination between educational organizations, governmental entities, and so forth. The education systems suffer from underfunded projects, while the decentralized or separate governmental entities do not always engage in dialogue or collaboration. In regard to aid to education, in 2012, CA received US\$348 million, while to basic education, US\$99 million (UNESCO, 2015b, p. 263)

For example, Kyrgyzstan participants recognized the low level of competence of teachers in the country and acknowledged the need for developing ICT standards. However, the lack of financing for the implementation of such strides remains to be the main barrier. Although the country allocates a relatively large proportion of its financial resources to education (7.38%), these funds remain to be insufficient, making the country dependent on international donors. Likewise, Kazakhstan also expressed its need for donor support for renewal of educational projects. A related challenge, as identified by Kyrgyzstan, is the country's continuous lack of unified standards, where many possibly successful initiatives cannot reach their full fruition due to insufficient integration and sharing of information.

Despite the need for better financing of educational programmes in the region, it is evident that in order to address this issue, along with the lack of coordination, collaboration and smart partnerships are to be considered seriously and utilized fruitfully for all parties. As was witnessed during the CASIE 2015, partnerships between governments as well as the private sector can enhance and provide more diverse resources, practices, and utilize finances in more efficient ways.

All things considered, the CA countries should cogitate on smart partnerships within the region, in addition to international cooperation. As many organizations and governmental entities can share resources as well as lessons learned, the countries can benefit from each other's strengths to mitigate and address the bottlenecks within education and ICT, especially in regard to common struggles. The region should also invest more efforts in the monitoring and evaluation of the ICT in education, while utilizing ICT within the education assessment and management processes. As ICT use and availability become more ubiquitous, its potential and innovative transformation should be harnessed in order to enhance these education systems in smart and sustainable ways. However, ICT should not act as a further divider for poorer students and teachers, who struggle to attain uniforms or earn adequate salaries. As such, basic education issues should be first systematically addressed, in order for ICT to really act as a catalyst to improving education, and transforming the ways in which we think, teach, and learn.

Promising Initiatives

The Symposium gathered local, regional, and international experts and organizations to reflect on the options, resolutions, and opportunities regarding the identified challenges. The delegates, participants and speakers shared their experiences, expertise and innovative approaches, while discussing possible points of collaboration with the goal of successfully integrating ICT into education. These projects were also considered within the CA context, their feasibility and success rates in the regional ICT and education landscape. This section describes the possible and promising initiatives, and resolutions that were seen as plausible and relevant to addressing the identified challenges in CA.

E-learning as an alternative delivery mode of education and training

E-learning has the potential of providing incredible opportunities for education and training at low costs so that remote or marginalized groups can have equal access to quality resources. But for this to take place, the governments have to make it a priority as well as make it a worthy cause for the private sector to get involved.

As KERIS had shared in their presentation entitled “[Teacher Training Using e-Learning for Professional Competency Development: Case of Korea](#)”¹⁵, teacher training should be customized, and reflect a teacher’s life cycle to lead to empowerment by career. Applying the latest technologies is not an essential element for the quality of training performance. Additionally, with the high mobile subscription rates in CA, the text-centred digital content can be used as a viable source of learning and teaching materials. The importance of a strong training policy drive at the state level was also highlighted. As such, training participation should be mandatory with additional pathways to incentivize teachers to eagerly participate. A proper assessment system in place should encourage private participation, while a training support centre should be in place to support the establishment of e-learning teacher training institutes, and perform monitoring of training quality and procedures. Intel introduced [Education Galaxy](#)¹⁶, a professional online community for Russian speaking teachers and educators in CIS countries. This platform focuses on ICT innovations in education, and offers professional development through different online activities as practice-oriented master-classes, trainings and webinars, with certificates for participants, blogs, and best practices from teachers on the implementation of ICT in education, professional contests, resources, and more.

Comprehensive teacher development policies and programmes

In order to implement, sustain and improve teacher training opportunities as well as their professional relevance and feasibility, the importance of harnessing available resources to provide quality and timely teacher training is undisputable.

Participating countries agreed that the lack of teacher competency standards or their outdated nature play an important role in hindering the desired goals and progress. Effective, timely and relevant teacher training can provide a firm backbone in preparing as well as continuously supporting teachers in their professional endeavours. Although Kazakhstan, Uzbekistan and Mongolia have developed ICT teacher competency standards, the countries still need to continuously revisit, update and monitor teacher competencies and acquired skills.

In the quest of developing national ICT competency standards for teachers, UNESCO Tashkent in collaboration with UNESCO Bangkok (as well as UNESCO IITE, and Intel) have engaged Uzbekistan as one of the pilot countries for “Supporting Competency-Based Teacher Training Reforms to Facilitate ICT-Pedagogy Integration” Project. Delegates from the Ministries of Education of Uzbekistan shared [the project progress and outputs](#) during the Symposium, including the draft competency standards developed in 2015 in accordance with the national policy vision and goals for ICT in education. The workshops utilized the [UNESCO ICT Competency Framework for Teachers \(ICT-CFT\)](#)¹⁷ and [UNESCO IITE Guidelines on Adaptation of the UNESCO ICT-CFT](#)¹⁸ as references, and contributed to the meaningful localization and adaptation of these in the country. Similarly, Kazakhstan had independently utilized the UNESCO ICT-CFT to develop these standards for their respective context. However, they seek further support from UNESCO in updating these standards.

¹⁵ In-service training: E-learning as an alternative delivery mode of training and continuous professional development for teachers.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS1.3_JinsunYOO-KERIS.pdf

¹⁶ Intel Education Galaxy. <https://edugalaxy.intel.ru/>

¹⁷ UNESCO ICT Competency Framework for Teachers.

<http://unesdoc.unesco.org/images/0021/002134/213475e.pdf>

¹⁸ UNESCO IITE Guidelines on Adaptation of the UNESCO ICT Competency Framework for Teachers.

<http://iite.unesco.org/publications/3214726/>

Uzbekistan's sharing of the national experiences was followed by UNESCO Bangkok's workshop session on developing such standards during the Symposium, and highlighted why governments should consider these, how to map the national education goals, how other pilot countries have approached this method, what key factors should be considered, and how to identify the next steps. Once more, the importance of a strong policy system in place for teacher preparation and professional development, drawn upon the standards, was restated as one of the key factors. Additionally, it was stressed that a clear recognition and qualification system that motivates teachers to constantly develop their competencies should be developed. Interdepartmental coordination for in- and pre-service training and/or other divisions for teacher performance and evaluation should also be in place. Evidently, involvement of multiple stakeholders in the process is crucial, as teachers, teacher professional associations, policy makers, educational experts, TEIs, universities, etc. should be able to relate to, understand, and play a role in defining the competency standards.

A promising teacher preparation case from Singapore was also introduced: "[Pre-Service training: Singapore ICT in Education Masterplan and Corresponding Pre-Service Teacher Preparation through Technological, Pedagogical and Content Knowledge \(TPACK\)](#)"¹⁹. Some of the lessons learned from the Singapore experience were that: 1) it takes time and constant work to sustain innovation (for example, Singapore has had three ICT Masterplans and recently launched a fourth one); 2) although frameworks and policies are critical, their implementation, sustainability and durability are even more so; and 3) teacher learning communities matter.

As teachers do not work in a vacuum, school leadership is important in supporting teacher motivation, innovation, and sustaining environments, to which SEAMEO INNOTECH delivered a presentation, "[A regional competency framework for excellent school leadership](#)"²⁰ with more than 130 competencies in total, and 5 core competencies. These were developed in order to promote a common standard of performance among school heads in Southeast Asia, and to guide the design of their training programmes. Likewise, Intel shared its [Education Leadership in the 21st Century](#)²¹ for school leaders to provide a better understanding of how technology can be utilized in enhancing teaching and learning.

From a practical perspective, [a school leader from Kazakhstan gave a presentation on ICT-pedagogy integration](#)²², where the importance of school leaders as the initiators of ICT innovative school education was once more accentuated.

¹⁹ Pre-service training: Singapore ICT in Education Masterplan and Corresponding Pre-Service Teacher Preparation through Technological, Pedagogical and Content Knowledge (TPACK).

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS1.2_ChaiChingSing.pdf

²⁰ A regional competency framework for excellent school leadership.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS2.2_LilibethTaa.pdf

²¹ The imperatives of school leadership and mentoring in fostering teacher innovation: Intel Education Leadership in the 21st Century.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS2.1_Intel_Nanaieva-Fogel.pdf

For the "Education Leadership in the 21st Century" online course, follow this link:

https://educate.intel.com/download/K12/elements/lead_html/index.htm. It is one of many others Intel Teach Elements free online courses available in English worldwide at

<http://www.intel.com/content/www/us/en/education/k12/teach-elements.html>, and in Russian at

<https://edugalaxy.intel.ru/?act=programmms>

²² A journey to ICT-pedagogy integration: A school leader's perspective.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS2.3_SharihanBaygunakova.pdf

EMIS and education data to support teachers and engage school leadership

EMIS and education data can inform stakeholders on the state of the education sector, its efficiency, pedagogical and institutional operation, its performance and shortcomings. It does not only collect, store and process data, but also helps in the formulation of education policies, their management and evaluation. With an exact understanding of the education diagnosis, effective management techniques can be identified with quick solutions to an issue at hand.

In order to highlight the importance of [ICT in Education statistics in Central Asia, UNESCO UIS](#)²³ shared that most importantly, data can support country policy making for ICT in education. While this data can be utilized to identify gaps and inform curricular or technical decision making, it can also help identify teacher training needs and gaps in knowledge and skills. In regard to CA, it was noted that not all the countries provide consistent, sufficient or any data at all. However, from the countries that do report data, progress has been evident.

A local case from CA, entitled “[Role and relevance of EMIS in policy decision at macro and micro levels](#)”²⁴, on achieving the development of EMIS came from the delegates of Tajikistan. The presenter shared the essential milestones of EMIS development. Some of the vital reasons for the government’s development of EMIS included the evident disjoint between the necessities of the education sector and the capacity of collecting the necessary information for the monitoring process. Additionally, EMIS aided in centralizing, unifying and systematizing the data collected. The outdated system of education was not on par with the educational evolution in the country.

As was discussed during the Q&A, CA countries have centralized systems of education governance, and can utilize that to their advantage in collecting reliable and coordinated data. Participants acknowledged that the available data is not always reliable, while EMIS can make it possible to collect candid and timely data. Moreover, it can contribute to the quality of the education systems, such as understanding and knowing how many teachers are trained, and how many more need training.

Digital and open resources for teaching and learning

Plenary Session 3 was dedicated to digital resources for teachers, where representatives from SOROS Foundation, Roza Otunbayeva Initiative, Ministry of Education of Malaysia, and UNESCO Headquarters shared their research, resources and practical cases on how to promote the development, implementation, and quality assessment of open educational resources.

In this regard, from the research point of view, the Roza Otunbayeva Initiative together with the SOROS Foundation shared [the national developments and strides in promoting the use and development of OER in Kyrgyzstan](#)²⁵. The research conducted brought forward evidence that the school textbooks are frequently irrelevant, outdated, and insufficient. As there is no OER policy yet in existence in the country, the consequent recommendations included developing and implementing national policies on open educational resources, creating an OER repository/database, providing teacher professional development on OER, and stimulating the development of ICT infrastructure in the Kyrgyz regions. The presenters also shared a programme led by the Ministry of Education and Science of the Kyrgyz Republic, “Open

²³ ICT in Education Statistics: Supporting effective policymaking in Central Asia.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS4.1_PeterWallet.pdf

²⁴ Role and relevance of EMIS in policy decision at macro and micro levels.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS4.3_Tajikistan-EMIS.pdf

²⁵ Open Education Developments in Kyrgyzstan.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS3.1_GulzadaUrgunaliyeva.pdf

Textbooks”, which has promoted all of the school textbooks to become free and open educational resources since 2014.

The practical case presented by the Ministry of Education of Malaysia showcased the national online platform, [the Virtual Learning Environment](#)²⁶, the first platform of its kind to have a single, nation-wide cloud-based learning “Frog VLE” platform accessible from anywhere with an Internet connection that embeds technology into teaching and learning. Teachers are able to manage students’ records, create their own teaching resources, provide feedback to students, and plan the curriculum. Students can keep track of their own progress, upload and save files, communicate with teachers and classmates. Parents can stay in tune with school events, reports, find contact information, and download forms. To achieve the successful implementation and engagement of the platform, the Government of Malaysia has followed the “smart school approach” to ensure high adoption through a staged process so that measures can be taken to improve the process. Moreover, to sustain success, incentives were set in place, such as rewards, role modelling, and competitions. The platform additionally allows to monitor schools, track online status, Internet speed, data usage, etc. The transformative factor of the platform has been in overcoming the existing challenges in the country, similar to those in CA, such as the rural-urban divide in access to and quality of education, industrialized teaching methods, an outdated education system, and the lack of transparency of governance. This system proved to be cost efficient and quality regulated, centralized through the cloud-based platform, self-sustaining, and collaborative.

From the policy perspective, UNESCO Headquarters, explored the potential of [OER for the Post-2015 Education Agenda](#)²⁷, such as 1) its power of reducing artificial barriers to inclusive and equitable access to quality content; 2) OER embedded pedagogy supporting effective teaching and knowledge deepening; 3) improving capacity of creating one’s own OER and thus fostering pedagogical innovation and knowledge creation; and 4) possibility of it enabling the personalization of lifelong learning pathways.

In addition to the Plenary Session, a noteworthy addition to the 2015 Symposium was the Gallery Walk that aimed to promote the sharing of digital resources for teaching and learning in the region. Demo stations of UNESCO Bangkok, UNESCO IITE, KERIS, Intel, Ministry of Public Education of the Republic of Uzbekistan, University of CA, National Informatization Centre of the Republic of Kazakhstan and others encouraged participants to ask questions, discuss possible collaborations, and learn from each other’s experiences.

Particularly, UNESCO Bangkok presented its [digital resources](#)²⁸ aimed at supporting teachers and teacher educators through a collection of curated open and free digital resources available on and offline. It also shared its most recent collection of productivity tools for teachers to provide them with ready access to quality open educational tools that have been screened, curated and categorized by pedagogical experts. UNESCO IITE showcased its [MOOC on ICT in Primary Education](#)²⁹ intended as a professional development course, the online “[ICT in Education](#)” course, and [OER in non-English speaking countries](#), particularly in CIS, to disseminate best practices, while raising awareness of OER. Likewise, KERIS presented the [Korea Open Courseware \(KOCW\)](#) that is a nation-wide open educational resource sharing service for higher

²⁶ National online platform for collaborative teaching: the Virtual Learning Environment in Malaysia.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS3.2_TeohBoonHai.pdf

²⁷ Deliver the Promises of OER for Post-2015 Education Agenda.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PS3.3_FengchunMiao.pdf

²⁸ UNESCO Bangkok CD-ROMS for Teaching and Learning. <http://www.unescobkk.org/education/ict/current-projects/cd-roms-for-teaching-and-learning/>

²⁹ ICT in Primary Education: Transforming children’s learning across the curriculum.

<https://www.coursera.org/course/ictinprimary>

education in the country, providing universal access to online lecture content. In this regard, KERIS was willing to share the best practices of the teacher training programmes in Korea that utilize KOCW content at the next CASIE (2016) so that the participants can learn how to incorporate higher education content to develop their own teaching training curricula. The Republic of Uzbekistan delegates presented the national multimedia resources, which are available in their online portal, and are willing to share these with the other countries for free. The [eBilim Mobile Digital Library](#) project, led by the University of CA, presented a case where a refurbished minibus can be used across rural areas of Kyrgyzstan to decrease the digital gap, as well as simultaneously be used as a way to generate knowledge about information needs, challenges and opportunities in these communities. Additionally, the Republic of Kazakhstan featured its digital textbooks that are being developed in line with the new education programmes in the country.

Smart partnerships within Central Asia and beyond

Smart partnerships are key in addressing common challenges and reaching toward effective and efficient use of ICT in Education across the region. Collaboration among CA countries as well as with international organizations has been one of the main objectives of the Symposium since its inception in 2011.

As UNESCO Bangkok Director [Gwang-Jo Kim shared in his keynote address](#)³⁰, the Qingdao Declaration along with the objective of CASIE views the role of ICT in achieving Education 2030 through a few lenses, one of which is multi-stakeholder local, regional and international partnerships and cooperation. Additionally, the Roundtable Discussion had also inspired co-organizers, local and international organizations, as well as country delegates to commit to stronger partnerships, exchange of knowledge and educational resources. The pre-symposium survey showed that the delegates have collaborated with each other and other organizations in the goal of improving the ICT in Education implementation. Moreover, participants reaffirmed their commitment to deeper and smarter partnerships within the region and beyond. The significance of establishing smart partnership within the region was reiterated by the second keynote speaker Professor [Peck Cho](#).³¹ According to him, despite each of the CA countries being at different stages in ICT in Education with unique evolutionary paths to their respective goals, they can all partake in each other's growth, share their lessons learned, and exchange best practices, in a similar future.

Ideas and Proposals for Collaboration

The Roundtable Discussion was held at the end of the Symposium to identify potential areas for collaboration across CA and beyond (especially with partner organizations who participated in the Symposium). The Roundtable Discussion began with individual country discussions, where each country team was provided with guiding reflection questions for formulating individual needs, available resources and future support, as well as how participants can effectively utilize the CASIE platform in the upcoming years.

³⁰ Post-2015 Global Education Agenda.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/GJKim-Keynote.pdf

³¹ ICT in education: A powerful enabler and equalizer.

http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/casie2015/PeckCho-Keynote.pdf

To follow, a delegate from each country team presented the key highlights of what they have learned from CASIE 2015, what is still lacking in the respective countries, what they can offer to other countries, and what future support would be needed. Finally, individual organizations and countries were given opportunities to discuss ways to collaborate and support each other.

The common areas of need that emerged from the Symposium are as follows:

- Teacher professional capacity
- Infrastructure and connectivity
- Digital resources for teachers and OER
- EMIS and educational data collection
- Monitoring and evaluation system
- Expert support and smart partnerships

Facilitated by Gwang-Jo Kim, the Director of UNESCO Bangkok, the participating delegates, experts and representatives of the partner organizations determined the following areas for immediate future collaboration:

- Capacity building for teachers, including developing and updating the national ICT competency standards for teachers
- Introduction of and support for EMIS
- Sharing of digital teaching and learning resources
- Developing monitoring and evaluation systems for teacher training, skills acquisition and performance

Table 5 summarizes the areas for immediate future collaboration, as identified through the Roundtable Discussion. Further details of the session are provided in Annex B.

Table 5
Areas for immediate future collaboration

Areas	Support needed (by country)	Support offered (by country/organization)
Capacity building for teachers	<ul style="list-style-type: none"> • Kazakhstan, Mongolia: updating of the teacher ICT competency standards • Kyrgyzstan: developing teacher ICT competency standards • Uzbekistan: finalize teacher ICT competency standards 	<ul style="list-style-type: none"> • UNESCO Bangkok: developing national ICT competency standards for teachers • UNESCO IITE: developing and updating national ICT competency standards for teachers, and online courses based on UNESCO ICT-CFT • Intel: Intel Teach Elements free online teacher professional development courses at Intel Education Galaxy online community • SEAMEO INNOTECH: Technical excellence for school heads

EMIS	<ul style="list-style-type: none"> • Kyrgyzstan • Mongolia 	<ul style="list-style-type: none"> • KERIS: Korean exemplary cases • UNESCO UIS (education and data statistics) • Mongolia (ESIS) • Tajikistan (EMIS)
OER/digital resources	<ul style="list-style-type: none"> • Mongolia • Kyrgyzstan • Uzbekistan 	<ul style="list-style-type: none"> • UNESCO Bangkok (digital resources) • UNESCO HQ (policy development) • UNESCO IITE (MOOCs, OER for non-English speaking countries) • Uzbekistan (digital resources)
M&E	<ul style="list-style-type: none"> • Kazakhstan, Uzbekistan: development of indicators for monitoring of teacher ICT competencies 	<ul style="list-style-type: none"> • UNESCO Bangkok • UNESCO UIS • UNESCO IITE
Others	<ul style="list-style-type: none"> • Kyrgyzstan and KERIS • Kyrgyzstan, KERIS, UNESCO Bangkok and UNESCO Almaty • UIS and UNESCO IITE 	<ul style="list-style-type: none"> • Global Symposium on ICT in Education (Incheon, Republic of Korea) • Technical consultancy to analyze ICT in education policy issues • Sub-regional workshops on ICT in Education statistics

Capacity building for teachers

All countries expressed their need to lead systematic competency-based teacher training throughout the Symposium. While Kazakhstan and Mongolia (as well as Uzbekistan) have already developed teacher ICT competency standards, both countries requested further support from the international organizations present, especially UNESCO, to help in updating the existing competencies to match today's school requirements.

Responding to this, UNESCO restated its willingness to continuously support the participating governments in developing and updating teacher ICT competency standards. UNESCO also freely and openly shares its materials, recommendations, and expertise in the field of application of the ICT Competency Framework for Teachers (ICT CFT) that governments can utilize when developing national competency standards for teachers, as did Kazakhstan, Mongolia, and Uzbekistan. UNESCO IITE and Intel added that they can provide additional support through free teacher development courses and platforms, as well as materials for developing education policy together with UNESCO. Intel noted its willingness to provide expertise for a holistic problem solving approach to ICT utilization. SEAMEO INNOTECH, also expressed its wish to further collaborate with UNESCO and participating governments by providing online courses for school heads, or any other support needed from the CA countries.

Introduction of and support for EMIS

Another point of collaboration that pertains to CASIE 2014 and 2015 is properly introducing and sustaining the collection of educational data. Most of the country delegates expressed either serious interest or initial stages of involvement and development of EMIS in their respective countries. Notably, Mongolia

and Tajikistan have already set such systems in place. To respond to the need of the other CA delegates, Mongolia expressed its willingness to share its experience of developing Enhanced Student Information Systems (ESIS).

UNESCO UIS and Director Gwang-Jo Kim had also expressed the importance of collecting accurate and timely data and indicators. In this regard, UIS representative had described the support that UNESCO UIS can provide, such as technical capacity building within countries, development of international frameworks, analysis of comparative data, as well as collection and dissemination of data. He also shared the [UNESCO UIS Technical Guide on ICT in Education](#)³², which can be useful to the participating governments. UIS and UNESCO IITE have proposed to jointly organise a series of sub-regional workshops on ICT in Education Statistics.

Most of the CA countries sought UNESCO's support in the process of developing evaluation indicators and the provision of external experts. With the underlined importance of collecting transparent, timely and relevant indicators stated by UNESCO UIS, the countries realize the importance of utilizing such indicators in assessing the progress of the teachers as well as the overall education systems.

Sharing of digital teaching and learning resources

Developing, sharing and exchanging digital and open educational resources for teaching and learning in the region has been an ongoing discussion. The Gallery Walk that took place during the Symposium was very helpful in contributing to these discussions, showcasing existing initiatives in the CA countries and beyond, and encouraging exchanges and collaborations. Notably, UNESCO Bangkok had featured its digital resources as well as a collection of productivity tools for teachers that are free and open, available online and offline for the countries in the Asia Pacific region.

UNESCO Headquarters representative, Fengchun Miao, had spoken about the resources that the organization can provide on a policy level, such as the development of national OER policies and global/regional advocacy. The implementation strategy that UNESCO follows involves country ownership, mainstreaming strategies, multi-entry point approach, and multi-stakeholder partners. UNESCO IITE expressed its readiness to share the MOOCs and online courses for teacher training, as well as OER in non-English speaking countries to advocate for the OER movement.

Most country delegates confirmed their need and willingness to collaborate with the other countries in developing and sharing their digital resources. For example, Uzbekistan in collaboration with KERIS, had developed commendable multimedia resources, which the delegates were open to sharing with the rest of the participants.

Developing monitoring and evaluation systems

The importance of being able to monitor and evaluate the skills and practices in the teaching and learning processes was restated throughout the event. Participating countries agreed that the existence of policies is not enough to properly implement and monitor their success rate. Both Kazakhstan and Uzbekistan had expressed their need in further guidance from the organizers in providing success cases and best approaches in developing proper monitoring indicators and approaches. UNESCO Bangkok had restated its support in promoting ICT in Education and helping improve education systems in the region, building the capacity of teachers, and helping identify best approaches to monitoring and assessing their progress.

³² Guide to Measuring Information and Communication Technologies (ICT) in Education.
http://www.uis.unesco.org/Library/Documents/ICT_Guide_EN_v19_reprintwc.pdf

Evaluation of the Symposium

The post-Symposium evaluation revealed that the participants found the event relevant (96.25 percent), useful (94.5 percent), and well-organized (95.25 percent). In addition, CASIE 2015 was able to achieve its two main objectives, with the participants noting that the Symposium was:

- Helpful in developing an action plan for their country (90.75 percent)
- Effective in promoting partnerships and collaboration (93.25 percent)

It was recommended that the Symposium continue to be a regular event, but the participants suggested the following improvements to CASIE:

- Involve higher education institutions (universities)
- Present more CA/CIS cases
- Provide more practical cases
- Have a group working session during the event
- Share tools that influence learning outcomes
- Organize the event biennially

The full evaluation report is provided in Annex C.

Conclusions and Next Steps

The CASIE 2015 was carried out successfully, achieving all of the set objectives. Official delegations from five out of the six invited countries attended, along with various national education stakeholders, international experts/speakers, and UNESCO experts to share and learn about recent ICT in Education initiatives in the region and beyond.

Inaugurated in 2011, the Symposium has gradually been positioned as an active and vital sub-regional platform for national education policy makers, experts, development partners and the private sector to cross-fertilize experiences and lessons learnt in planning and implementing ICT-integrated education. It also has promoted collaboration and partnership among these key players. As a tangible result, new collaboration projects have been initiated between participating CA countries and development partners, such as teachers' ICT skills development in Mongolia supported by KERIS.

This year's CASIE particularly aimed to provide an opportunity for participating countries to collectively formulate a strategic plan for the CASIE platform for the next 3-5 years. Four areas emerged as priorities that require further support: 1) Developing/updating a strategic framework for ICT in education policy development and implementation (e.g. Mongolia, Kyrgyzstan, and Uzbekistan); 2) strengthening teacher capacity based on the national ICT competency standards for teachers, together with robust monitoring and evaluation systems for teachers' development and performance (e.g. Kazakhstan); 3) building/enhancing a national EMIS that collects, analyzes and disseminates educational data to inform policy development (e.g. Uzbekistan and Tajikistan); and 4) establishing a policy/technical mechanism to readily share open educational resources across the region (e.g. Uzbekistan).

Measures to support the CA countries in addressing the four priority areas are being sought out and are already pursued by UNESCO and other partners. For example, UNESCO and KERIS collectively took a mission in September 2015, immediately after this year's CASIE, to respond to the call from the Government of the Kyrgyz Republic for a technical consultancy to identify issues/disjoints between policy and practice, and help develop a strategic plan for education reform. UNESCO Paris also committed to support Uzbekistan in integrating ICT in the TVET sector.

UNESCO Bangkok will continue to monitor and document the progress and achievements of the CA countries in their priority areas, and explore effective collaboration modalities with partners.

A consensus was made among the participating delegates at the end of the Symposium that the next CASIE will be hosted by the Government of Kazakhstan in 2016.

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ANNEX A: List of participants

COUNTRY DELEGATES

	First Name	Last Name	Country	Position	Organization
1	Turlan	Abdikarimov	Republic of Kazakhstan	Expert, Department of Pre-School and Secondary Education	Ministry of Education and Science
2	Yelena	Artykbaeva	Republic of Kazakhstan	Vice-President	National Informatization Centre
3	Saule	Mukhambetzhanova	Republic of Kazakhstan	Chairperson for Chair of Management and ICT	Republican In-Service Teacher Training Institute
4	Sabit	Suatai	Republic of Kazakhstan	Deputy Director	Republican In-Service Teacher Training Institute
5	Toktobubu	Ashimbaeva	Kyrgyz Republic	Deputy Minister	Ministry of Education and Science
6	Azik	Rakhmatov	Kyrgyz Republic	Leading Specialist, Department of Monitoring and Strategic Planning	Ministry of Education and Science
7	Abakir	Mamytov	Kyrgyz Republic	President	Kyrgyz Academy of Education
8	Dolotbay	Eshpulatov	Kyrgyz Republic	Director, Centre of Retraining	Kyrgyz Academy of Education
9	Luvsanjamts	Lkham	Mongolia	Head, Innovation and High Technology Department	Ministry of Education and Science
10	Lkhagvasuren	Buyantogtokh	Mongolia	Project Manager, Education Sector Information System	Ministry of Education and Science
11	Abdurakhmon	Gulov	Republic of Tajikistan	Head, EMIS Department	Ministry of Education and Science
12	Kiromuddin	Nazarov	Republic of Tajikistan	Director, ICT Centre	Ministry of Education and Science
13	Bakhtiyor	Safarov	Republic of Tajikistan	ICT in Education Specialist	Ministry of Education and Science
14	Abdurashid	Khundibayev	Republic of Uzbekistan	Head, IT Department	Ministry of Public Education

CASIE 2015 OUTCOME DOCUMENT

15	Aziz	Igankulov	Republic of Uzbekistan	Chief Specialist	Centre for Secondary Specialized and Vocational Education
16	Erkinbek	Eshpulatov	Republic of Uzbekistan	Senior Specialist, Department of ICT Implementation into the Educational Process	Ministry of Higher and Secondary Specialized Education
17	Kozimbek	Gafurov	Republic of Uzbekistan	First Deputy Director, CDMEP	Ministry of Public Education

LOCAL PARTICIPANTS

	First Name	Last Name	Country	Position	Organization
1	Elvira	Sarieva	Kyrgyz Republic	Minister of Education and Science	Ministry of Education and Science
2	Abdimannap	Muratov	Kyrgyz Republic	Head, Department of Education, Culture and Sports	Government of the Kyrgyz Republic
3	Elnura	Korchueva	Kyrgyz Republic	Secretary General	National Commission for UNESCO of the Kyrgyz Republic
4	Usen	Omuraliev	Kyrgyz Republic	Chairman of the Board	Kyrgyz Association of Distance Education
5	Tolobek	Abdrakhmanov	Kyrgyz Republic	Rector	I.Arabaev Kyrgyz State University
6	Aline	Rosset	Kyrgyz Republic	Project Coordinator, "Mobie Digital Library E-Bilim"	University of Central Asia
7	Arstan	Birimkulov	Kyrgyz Republic	Head, IT Manager	"Ilim" UNESCO Associated School
8	Begaim	TuleShougenova	Kyrgyz Republic	Assistant of the OER Project	Roza Otunbayeva Initiative
9	Ermek	Sultangaziev	Kyrgyz Republic	Director, "ILIMTehLab"	"Ilim" EC
10	Guldana	Akieva	Kyrgyz Republic	Director, Institute for the Improvement of Professional Skills and the Retraining of Staff	I.Arabaev Kyrgyz State University
11	Gulzhan	Mamytova	Kyrgyz Republic	Teacher Training Specialist	World Bank
12	Gulnara	Djunushalieva	Kyrgyz Republic	Director, School of Professional and Continuing Education	University of Central Asia
13	Gulzada	Urgunalieva	Kyrgyz Republic	Project Coordinator	Roza Otunbayeva Initiative

CASIE 2015 OUTCOME DOCUMENT

14	Ilyas	Sarybaev	Kyrgyz Republic	Project Specialist, Textbook and Education Materials	Ministry of Education and Science
15	Jarkyn	Ryskulova	Kyrgyz Republic	Evaluation Expert	World Bank
16	Lira	Samykbayeva	Kyrgyz Republic	Freedom of Information Programme Manager	SOROS Foundation
17	Mavluda	Isakova	Kyrgyz Republic	Expert, Department of Education, Culture and Sports	Government of the Kyrgyz Republic
18	Ramil	Yarmukhamedov	Kyrgyz Republic	Institute of Distance Education and Retraining	I.Razzakov Kyrgyz State Technical University
19	Saltanat	Azarova	Kyrgyz Republic	Education Specialist, Secretariat	National Commission for UNESCO of the Kyrgyz Republic
20	Svetlana	Tenizbaeva	Kyrgyz Republic	Director, SOS	H. Gmainer Educational Complex
21	Ulan	Brimkulov	Kyrgyz Republic	Dean, Faculty of Engineering	"Manas" Kyrgyz-Turkish University
22	Ruslan	Sabyrov	Kyrgyz Republic	Expert	Kyrgyz Academy of Education

SPEAKERS

	First Name	Last Name	Country	Position	Organization
1	Byeong-Gil	Sohn	Republic of Korea	Director, Global Policy Research Centre	KERIS
2	Jongwon	Seo	Republic of Korea	Senior Researcher, Centre for Global Cooperation and Policy Research	KERIS
3	Jinsun	Yoo	Republic of Korea	Research Fellow	KERIS
4	Soo-Ji	Lee	Republic of Korea	Senior Researcher	KERIS
5	Chai	Ching Sing	Singapore	Associate Professor, the Learning Sciences and Technologies Academic Group	National Institute of Education
6	Lilibeth	Taa	Philippines	Senior Officer	SEAMEO Innotech
7	Peck	Cho	Republic of Korea	Distinguished Professor, the Centre for Teaching and Learning	Dongguk University
8	Sharihan	Baygunakova	Republic of Kazakhstan	Director	UNESCO Associated School at Kazakh American University

CASIE 2015 OUTCOME DOCUMENT

9	Tatiana	Nanaieva	Ukraine	CIS Corporate Affairs Director	Intel CIS
10	Irina	Krasnova	Russian Federation	Education Galaxy Chief Editor	Intel CIS
11	Fengchun	Miao	French Republic	Chief, ICT in Education	UNESCO Paris
12	Peter	Wallet	Canada	Assistant Programme Specialist, CI unit	UNESCO UIS

UNESCO REPRESENTATIVES

	First Name	Last Name	Position	Organization
1	Gwang-Jo	Kim	Director	UNESCO Bangkok
2	Jonghwi	Park	Programme Specialist, APEID-ICT in Education	UNESCO Bangkok
3	Auken	Tungatarova	Programme Assistant, APEID-ICT in Education	UNESCO Bangkok
4	Serguei	Lazarev	Director	UNESCO Almaty
5	Aigul	Khalafova	Education Officer	UNESCO Almaty
6	Alexandr	Khoroshilov	Officer-in-Charge	UNESCO IITE
7	Bakhtiyor	Namazov	Education Programme Officer	UNESCO Tashkent

ANNEX B: Detailed summary of the Roundtable Discussion, by country and organization

Collaboration within CA

- Mongolia
 - Would like support on developing of digital resources for teachers and OER
 - Would like support in developing/updating teacher ICT competency standards from UNESCO
 - Willing to share their ESIS with other CA countries
- Kyrgyzstan
 - Would like support in the form of experts, especially for ICT competencies in teacher training programmes, as well as exchanging information on best practices from neighbouring countries
 - Would like to collaborate with Kazakhstan
- Tajikistan
 - Would like to learn from Uzbekistan and its multimedia centre as a good model for Tajikistan
 - Can develop materials and courses for teachers
- Uzbekistan
 - Would like to learn more on how to monitor and evaluate ICT in education indicators for teachers from UNESCO UIS and other external experts
 - Would like to learn more from Korea and the UK

Possible support from other organizations or countries beyond CA

- UNESCO IITE
 - Provides a lot of relevant content in substance and language
 - Believes that the uniting point are the ICTs and the pedagogues
 - A national education system should have all the teacher levels separately
 - For next year, would wish to discuss the relationship between different levels of education, while remembering that the school is at the centre together with the formation of the proper learning environments (for example, Malaysia VLE); professional connections between pedagogues in higher education and school teachers, since we should consider the inter-level connections within ICT competencies
 - Pedagogues need to receive training first and the appropriate programme with the standards integrated, leading to another important factor of overall standardization as a way to ensure teacher professional development
 - Additionally, would wish to explore the relationship between MOOCs, online learning and OERs through the use of mobile technologies
 - Finally, would like to discuss the question of reliability, quality, and safety of OER, also known as “digital safety” and “cyber wellness”
 - Is willing to co-finance future events
- Intel
 - Is ready to support the next CASIE (2016)

- National education policy should be unified with a clear vision, master plan, implementation plan, and monitoring and evaluation of the effectiveness, to which end UNESCO provides great resources. If the country does not have such a policy, all other initiatives cannot successfully bring about a leap toward progress, and UNESCO can also share its great expertise here
- It is important to evaluate the challenges in a holistic manner so that we can reach the real outcome of quality education
- In regard to IT infrastructure development, no one other than the producers or developers of the technologies can better advise countries about the appropriate choice. Therefore, the importance of public-private partnerships should also be noted
- For next year's Gallery Walk, which was very useful this year, holistic solutions aside from technologies should be featured, including the importance of being aware of the Total Ownership Cost, which if possible, should be decreased
- Intel provides free online teacher development courses, materials for developing education policy together with UNESCO through [ICT in Education Policy](#), a platform for the teacher online community, and expertise for holistic resolution to problems for ICT utilization
- World Bank (unofficial representative)
 - Can work on the partnership with UNESCO for the better conditions of education and its quality
 - As powerful as ICTs are, it is only a tool, and the most important factor is to have a strategic vision and understanding of the use of ICT, while keeping in mind the importance of content
 - In response, Gwang-Jo Kim (UNESCO Bangkok) suggested that the World Bank should be part of the next CASIE (2016), providing financial and non-financial resources
- SEAMEO INNOTECH
 - Offers its services of research and development
 - Is open to collaborating with UNESCO and other countries
 - Provides a free online course in English: Tech Excellence for School Heads. Can collaborate with UNESCO, if translation is needed
 - Will be part of the next CASIE
 - May contact other CAN countries for potential support
- Professor Peck Cho
 - Impressed by the SEAMEO INNOTECH example of inter-country collaboration and international cooperation on a list of competencies
 - One general comment: all countries are not only at different stages of ICT in Education development, but also taking different evolutionary paths with different contexts. Each country has its own unique set of issues as well as potentials. There is no one most successful strategy. On the bright side, all countries share two things in common, 1) same technology, which means that countries can help each other, and 2) although each has its own different tasks and different paths, all can share the same successful future
 - When planning for ICT integration, it is important to have a clear picture of what is possible, practically, and not theoretically

- As a suggestion, before the upcoming CASIE, participants should visit each other to have a better vision of possibilities in different contexts to learn from one another in a practical manner
- UNESCO Bangkok
 - CASIE 2016 will take place in Almaty, Republic of Kazakhstan, with the support of the national government, KERIS, Intel CIS, SEAMEO INNOTECH, the World Bank, and other partners
 - Timeline: May-September 2016 (TBD)
 - The colleagues at UNESCO Almaty to be the focal points for the event, with the support of UNESCO UIS, UNESCO IITE, and UNESCO Headquarters

ANNEX C: Post-Symposium evaluation and feedback from participants

The Symposium was successfully carried out as planned, with five of the six invited countries sending representatives from Kyrgyzstan, Kazakhstan, Uzbekistan, Tajikistan and Mongolia. The Symposium brought together around 70 participants composed of Ministry of Education officials, various education stakeholders from Kyrgyzstan, international experts/speakers, and UNESCO offices to share and learn about recent ICT in Education initiatives in the region and other parts of the world.

The post-event evaluation was carried out at the end of the Symposium to which the total 27 participants responded. As is evidenced in Figure 3 below, the respondents found the Symposium relevant (3.85/4), useful (3.78/4), and well-organized (3.81/4). The Likert scale offered a choice of 1 to 4, with “1” representing “strongly disagree” and “4” representing “strongly agree”. Survey results demonstrate that their awareness on the importance of empowering teachers through ICT has increased (3.58/4). Additionally, their level of confidence in planning and implementing ICT for Education has increased (3.64/4). Furthermore, the Symposium helped participants progress in developing an action plan for their country (3.63/4) and effectively promoted partnerships and collaboration (3.73/4). Overall, participants also noted that they learned new concepts (3.58/4) and acquired new knowledge and skills (3.67/4).

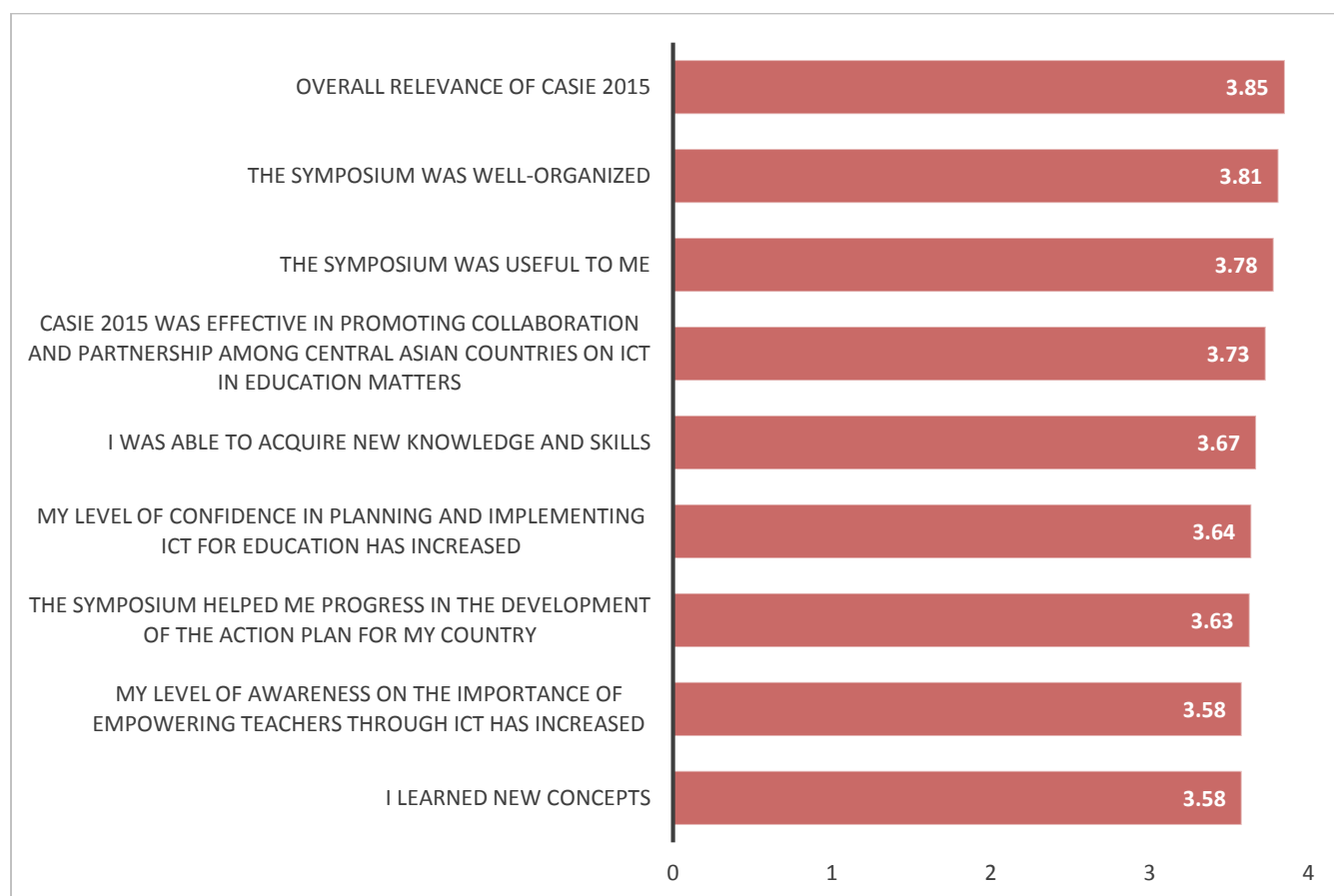


Figure 3. Quality of the Symposium

With the same Likert scale, for the individual session evaluation, shown in Figure 4, the respondents indicated that they found all the plenary sessions pertinent. Ratings across the sessions ranged from 3.52 to 3.96 out of the possible 4, showing that the participants connected with the topics discussed.

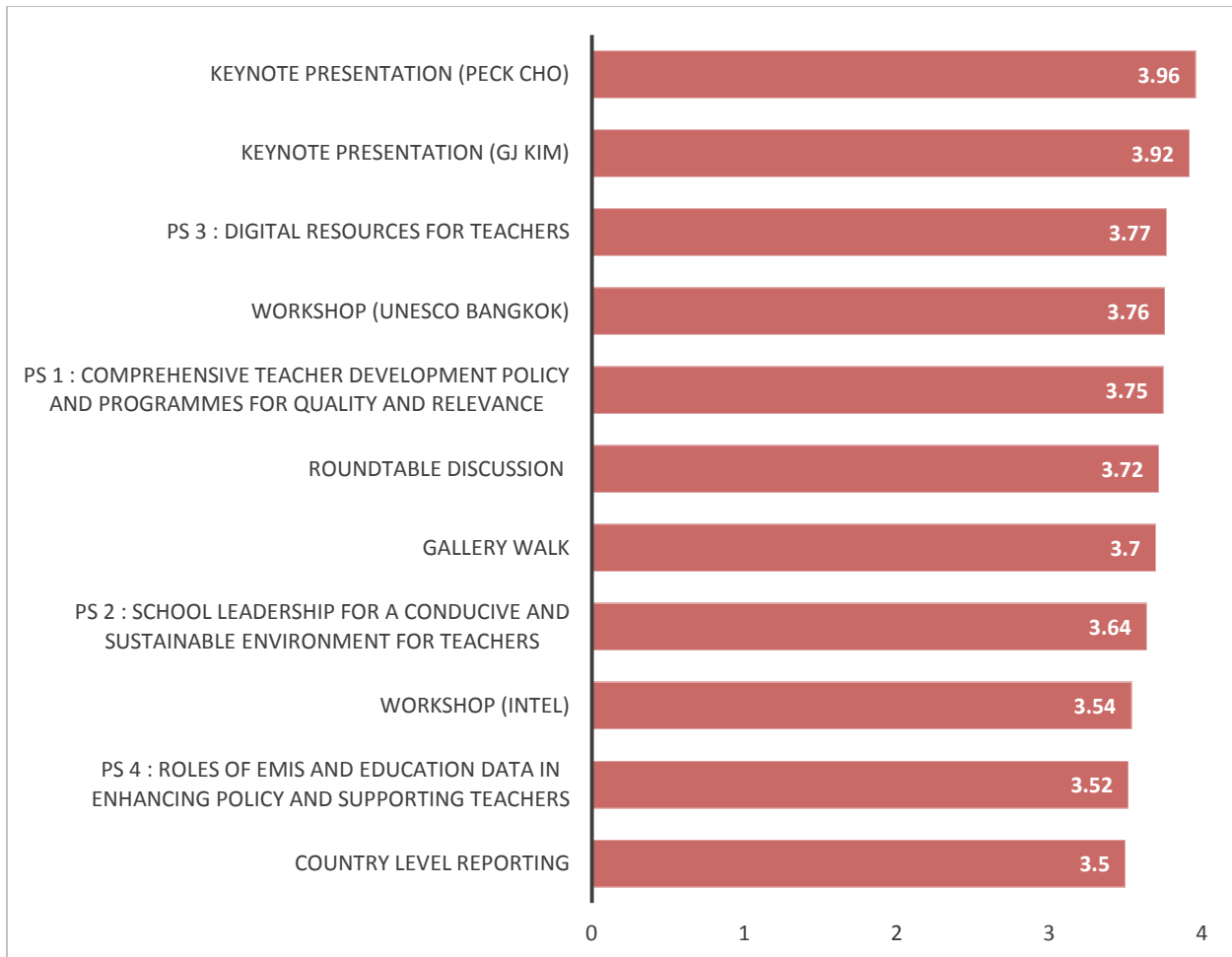


Figure 4. Overview of the sessions

On a Likert scale from 1 to 5, with “1” being the lowest and “5” the highest, the delegates from the five CA countries gave a 4.63/5 rating as to the extent of CASIE 2015 impacting education policy development in their countries, and a 4.52/5 rating as to the extent of CASIE 2015 impacting education practice (policy implementation) in their countries, as indicated in Figure 5.



Figure 5. Impact of the Symposium

Participants additionally suggested some of the following improvements to CASIE: 1) involve universities, 2) present more CA/CIS cases, 3) provide more practical cases, 4) have a group working session for participants during the Symposium, 5) share tools that influence learning outcomes, and 6) potentially organize the event biennially.

