ICT in TVET – regional overview

Bringing TVET up to speed

ICT-enhanced practices in TVET

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ADB, Manila, 1-2 Dec 2015

Issues to be addressed

- ICT as a megatrend
- Achievements and challenges: ICT in TVET
- Conditions to enable successful use of ICT in TVET illustrated by examples

ICT as a megatrend

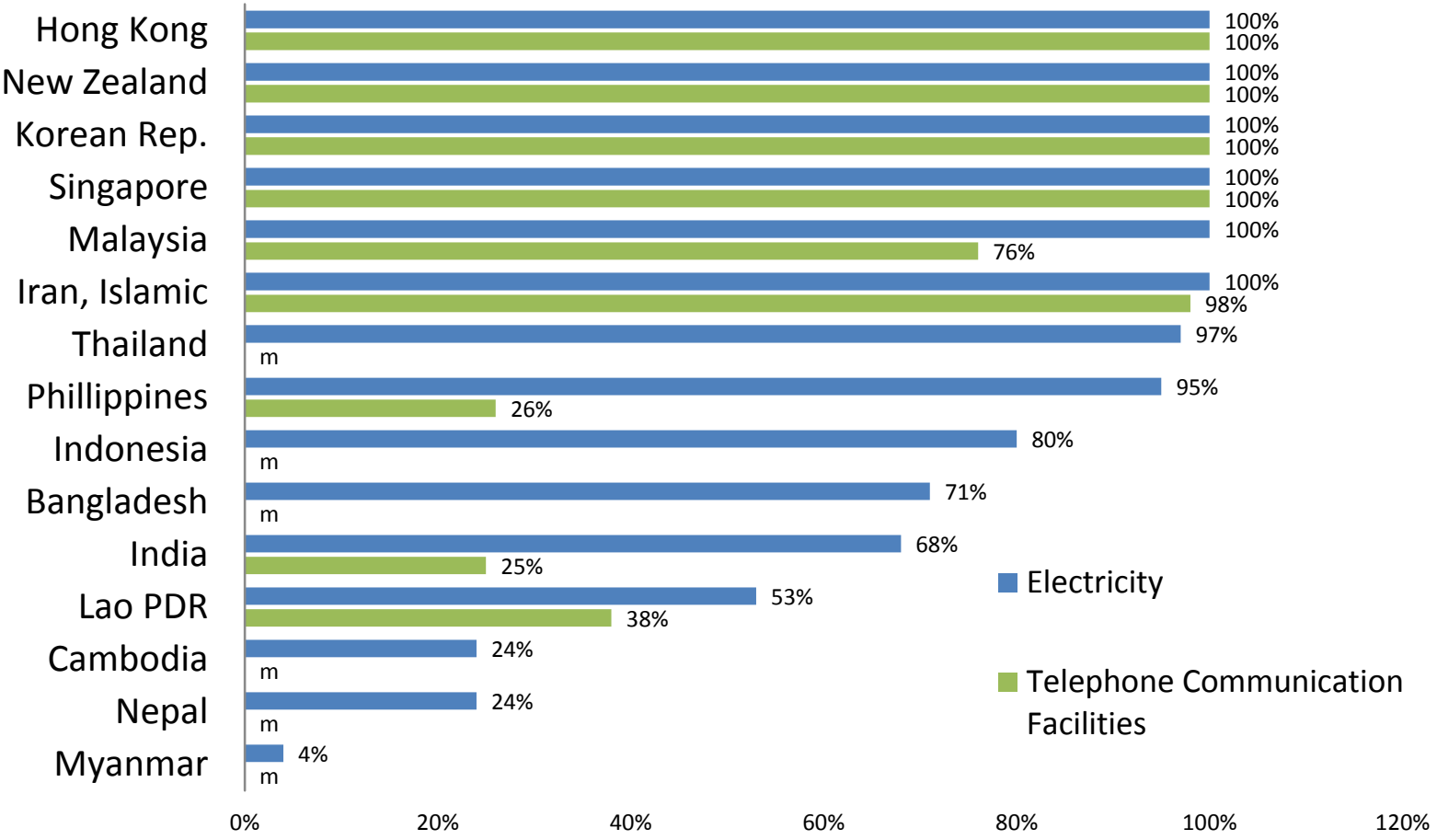
Trends Shaping Education 2013

OECD (2013)

- The dynamics of globalization
- Transforming our societies
- The changing world of skills and work
- Modern families
- **Infinite connection**: Universal Internet access, the rise of portable devices and social media, and the dark side of cyber space – bullying and fraud

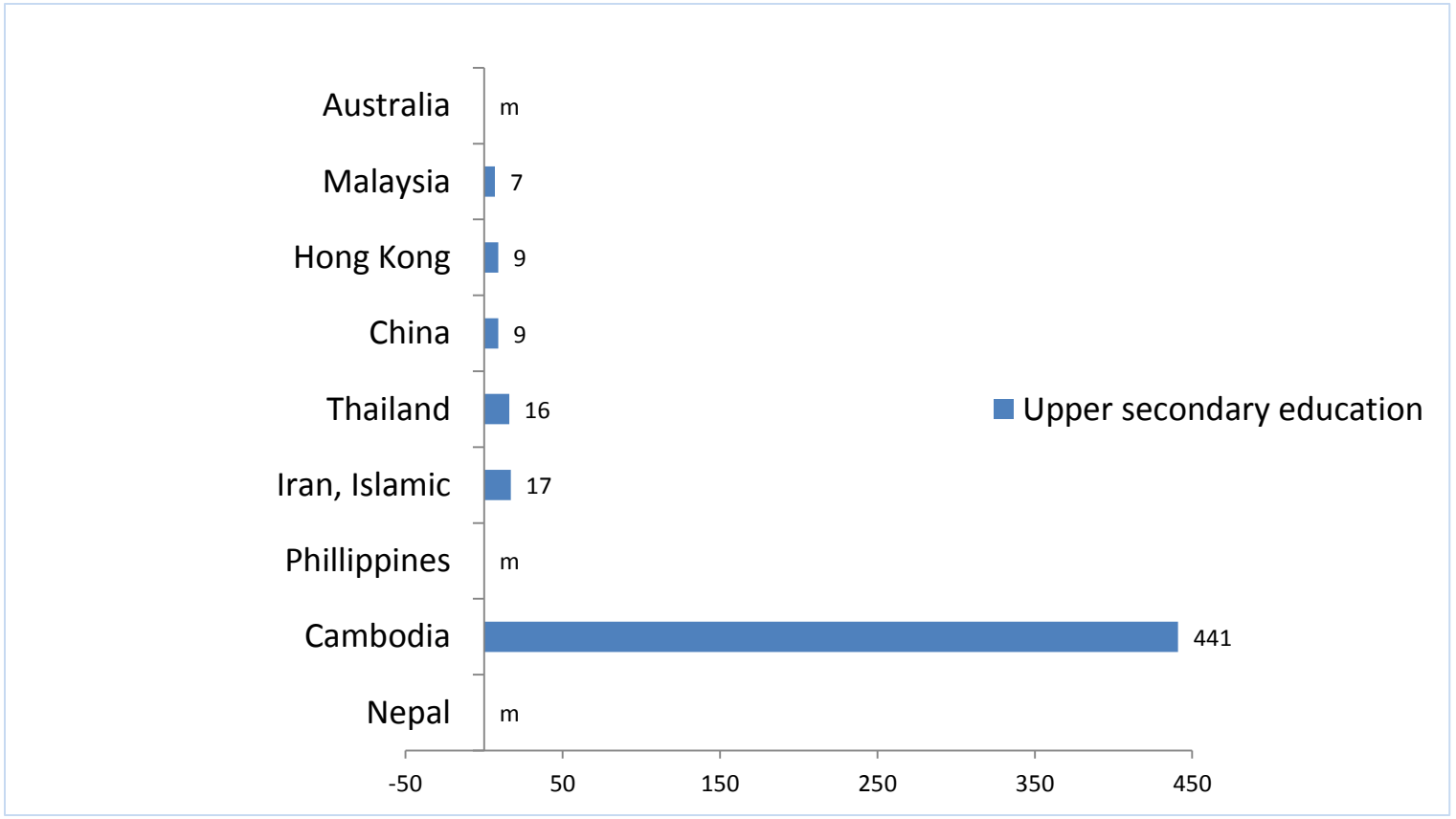
Universal access and education?

Proportion of educational institutions with basic electrical and telecommunications infrastructure, 2012 (ISCED 3)



(UNESCO UIS, 2013)

Learner-to-computer ratio in upper secondary education, 2012



(UNESCO UIS, 2013)

ICT infrastructure in secondary educational institutions, ISCED 3, 2012

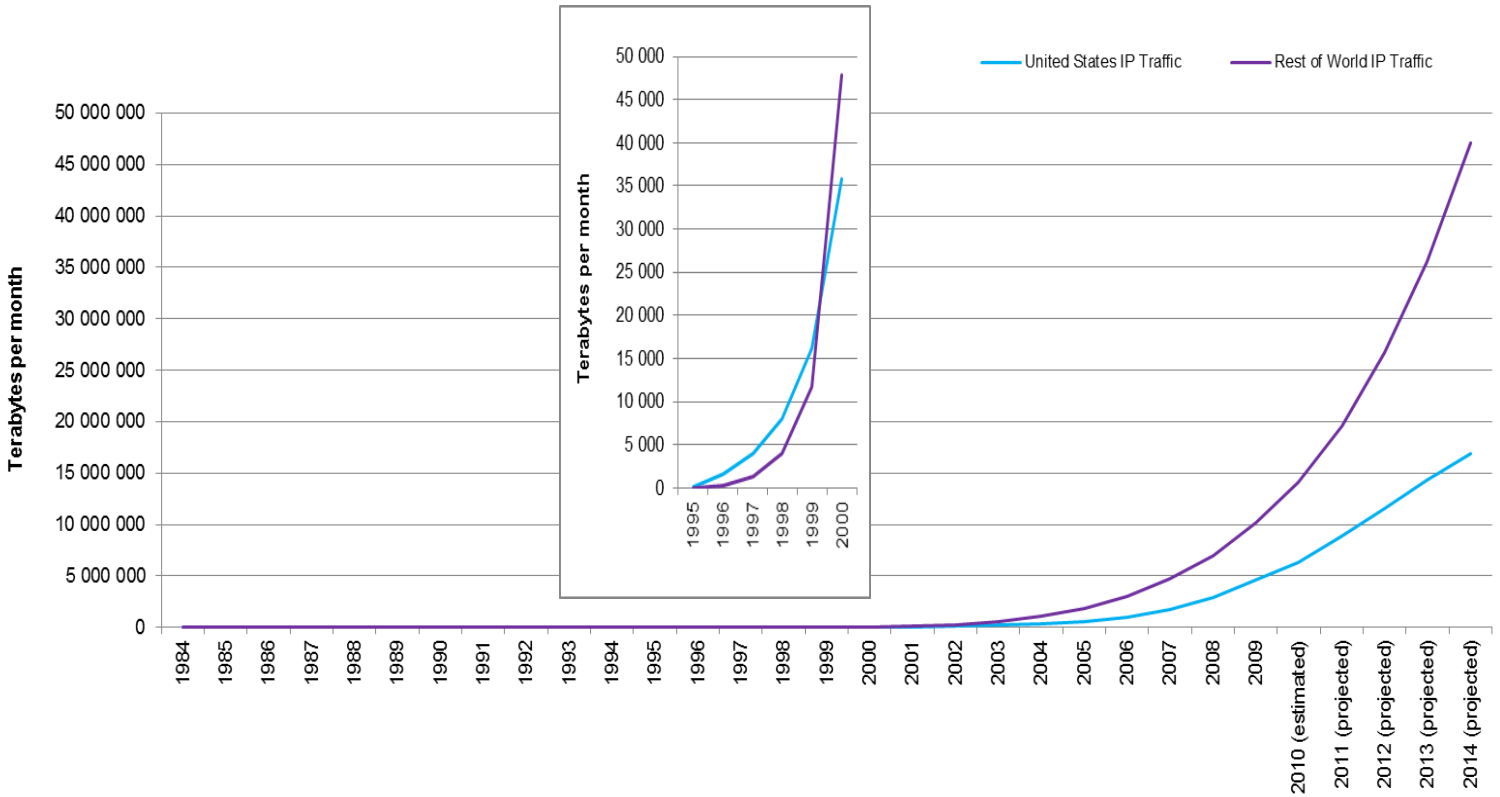
(UNESCO UIS, 2013)

REGION	Educational institutions with electricity		Educational institutions with a telephone communication facility		Educational institutions with radio-assisted instruction (RAI)		Educational institutions with television-assisted instruction (TAI)		Educational institutions with computer-assisted instruction (CAI)		Educational institutions with computer laboratories		Educational institutions with a Local Area Network (LAN)	
	(%)		(%)		(%)		(%)		(%)		(%)		(%)	
Country or Territory	Total	Public	Total	Public	Total	Public	Total	Public	Total	Public	Total	Public	Total	Public
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
CENTRAL ASIA														
Armenia	100	100	80	82	...	...	...	...	100	100	92	95	...	...
Azerbaijan	100 d	100 d	100 d	100 d	...	5 d	...	36 d	...	84 d	...	84 d	...	...
Georgia	100	100	100	100	...	...	...	...	100	100	100	100	...	...
Kazakhstan	...	...	...	...	...	...	...	...	...	100 **	...	...	...	...
Kyrgyzstan	100 d	100 d	...	...	-	-	...	...	...	86 d	...	86 d	...	...
Mongolia	91 d	90 d	...	...	...	...	...	...	100 d	100 d	92 d	93 d	...	...
EAST ASIA AND THE PACIFIC														
Australia	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brunei Darussalam	...	...	...	...	100 **,-3	...	...	...	100 **,-3	...	...	...	...	...
Cambodia	...	24	...	...	...	...	...	...	...	3 **,d	...	...	...	...
China	...	...	...	...	...	...	...	...	...	...	...	...	...	...
China, Hong Kong Special Administrative Region	100	100	100	100	...	100	100	100	...	100	...	100	...	...
China, Macao Special Administrative Region	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Indonesia	80 e	79 e	...	...	...	...	...	...	...	...	37 e	33 e	...	...
Japan	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lao People's Democratic Republic	53	50	38	36	...	...	...	...	...	...	...	...	...	...
Malaysia	100 -1	100 -1	76 -1	74 -1	...	18 -1	...	100 -1	...	100 -1	92 -1	91 -1	...	...
Myanmar	4	...	2	...	13	...	15	...	15	...	10	...	...	...
New Zealand	100 d,-1	100 d,-1	100 d,-1	100 d,-1	...	...	...	...	...	...	...	...	...	...
Philippines	...	95 *,e	...	26 *,e	...	...	...	...	...	87 *,e	...	87 *,e	...	...
Republic of Korea	100 **	100 **	100 **	100 **	...	...	...	...	100 **	100 **	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Singapore	...	100 -1	...	100 -1	. -1	. -1	...	. -1	...	100 -1	...	100 -1	...	...
Thailand	97 *	100 *	35 *	29 *	...	18 *	19 *	19 *	97 *	100 *	97 *	100 *	...	...
SOUTH AND WEST ASIA														
Bangladesh	71	85 **	93 *	85 **	...	...	...	...	...	...	38 **	...	...	...
Bhutan	91	90	...	...	.	.	.	.	...	66	...	66	...	...
India	68 g	59 g	25 g	17 g	...	...	...	...	...	...	45 g	36 g	...	...
Iran (Islamic Republic of)	100	100	98	98	...	...	...	...	76	76	...	43	...	...
Maldives	100	100	100	100	...	...	...	...	...	40 d,**	...	40 d,**	...	...
Nepal	24 -1	27 -1	...	...	...	...	...	...	4 -1	3 -1	...	...	...	...
Sri Lanka	82 d,-1	82 d,-1	32 d,-1	31 d,-1	- d,-1	- d,-1	28 d,-1	28 d,-1	60 d,-1	60 d,-1	34 d,-1	33 d,-1	...	...

Exponential use of the Internet and education

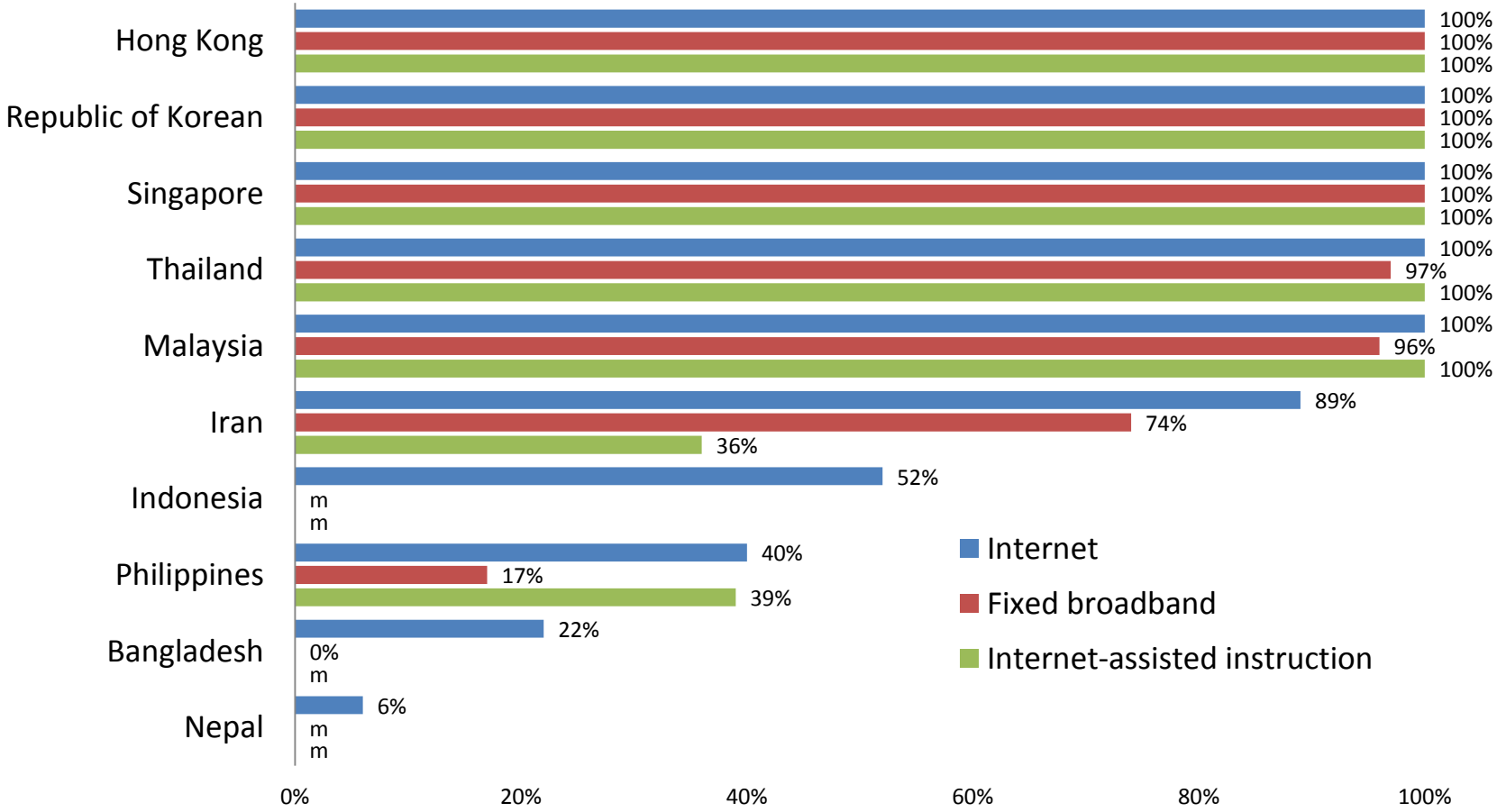
Global IP traffic, 1984-2014 (projected)

Global Internet activity rising exponentially



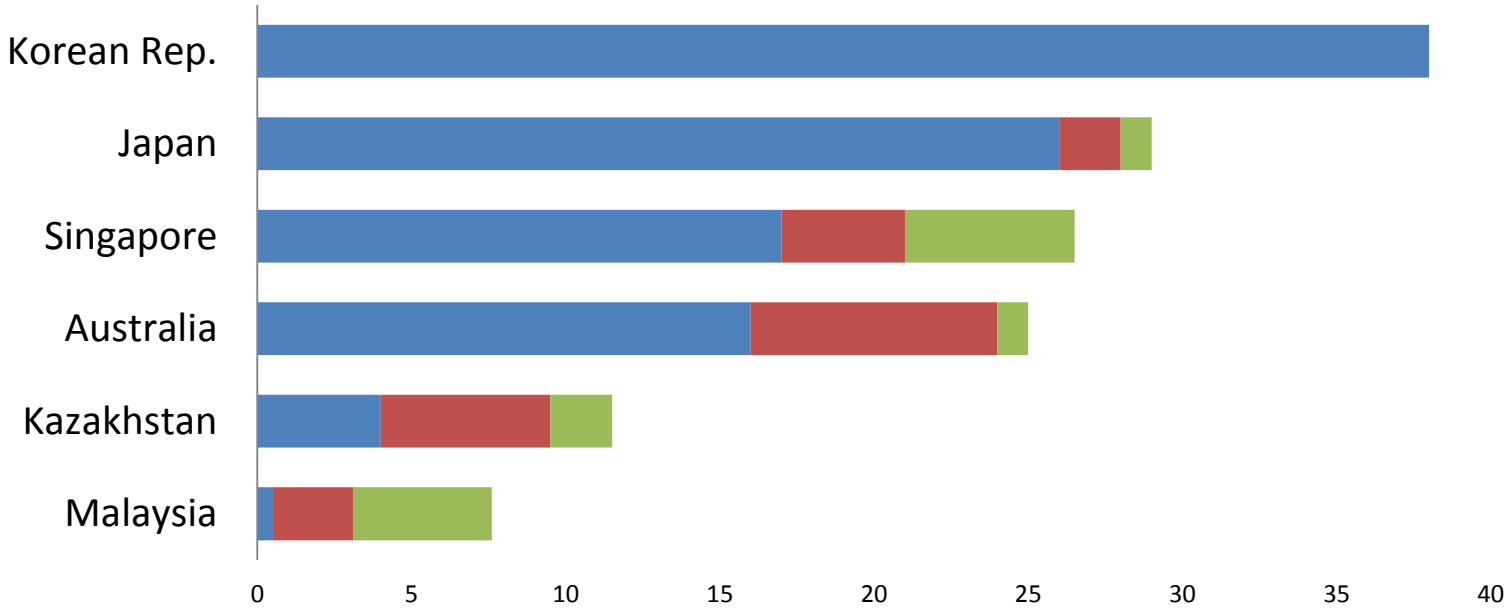
Source: OECD (2011), *OECD Communications Outlook 2011*, OECD Publishing. doi: 10.1787/comms_outlook-2011-en

Proportion of educational institutions with Internet, fixed broadband and Internet-assisted instruction, 2012 (ISCED 3)



UNESCO UIS, 2013

Differences in broadband speed



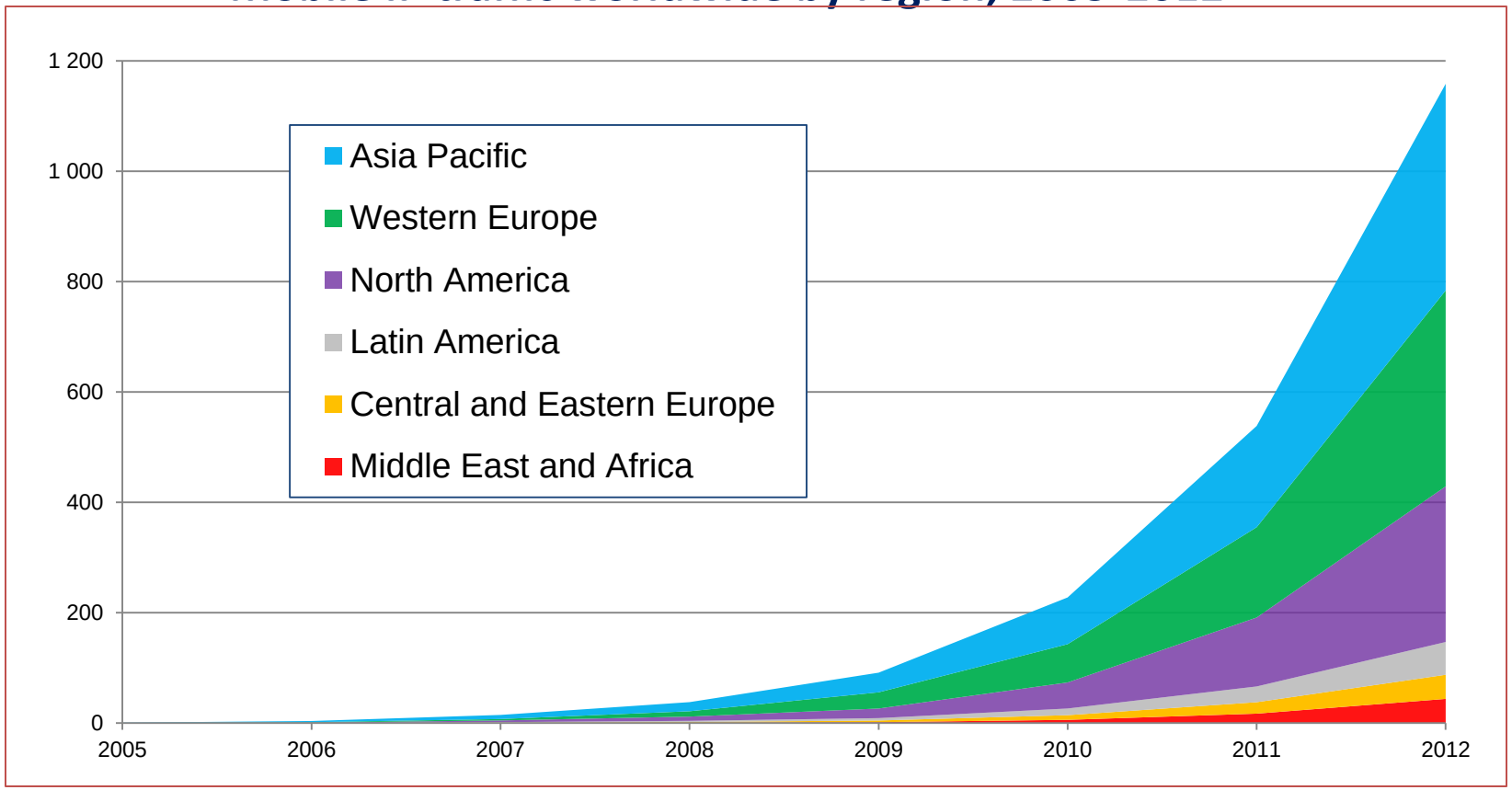
Fixed-broadband subscriptions per 100 inhabitants, by speed, early 2014 (selected countries)

Source: International Telecommunication Union, 2015

The world in your pocket and education

Expanding use of mobile broadband

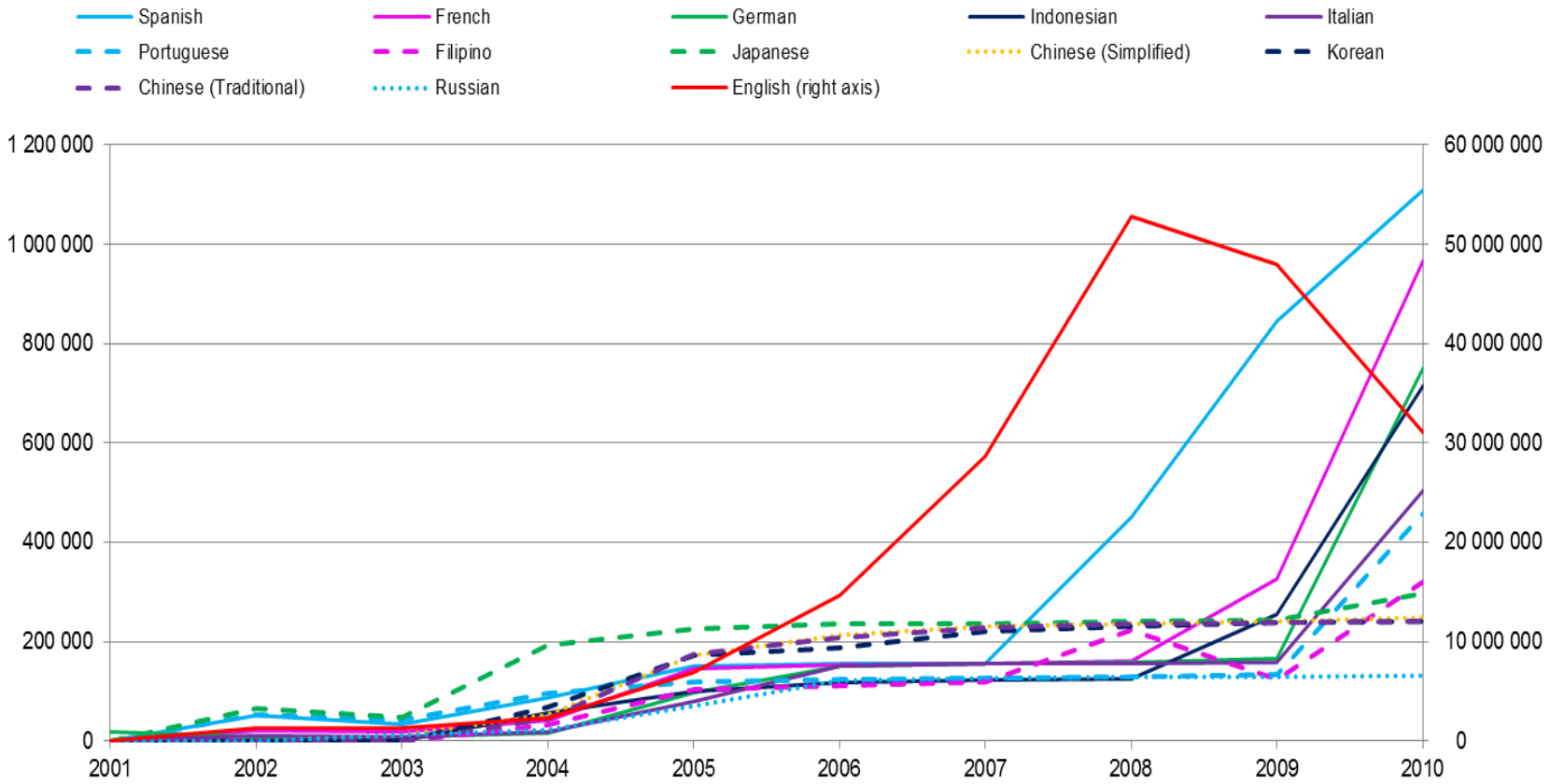
Mobile IP traffic worldwide by region, 2005-2012



Trends Shaping Education 2013 edition - © OECD 2012

Local diversity and education

Individuals engaging online in many different languages



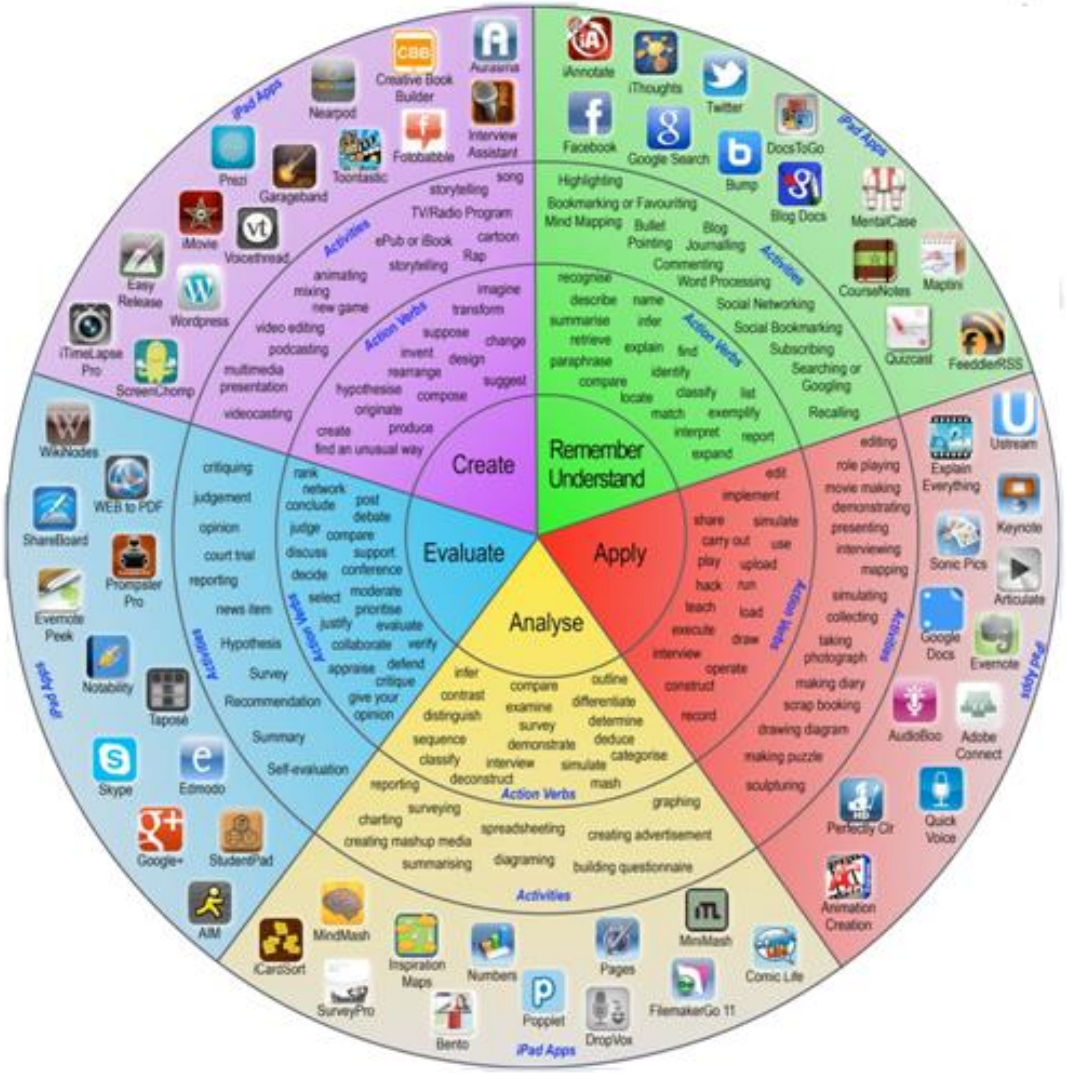
Number of blogs indexed by Google, presented by language (left axis) and English (right axis), 2001-2010

Transforming our internet and education

A Padagogy Wheel

(typo intended)

by Allan Carrington



Source: http://www.unity.net.au/padwheel/padwheelposterV3.pdf

Achievements and challenges: ICT in TVET

Different facets of ICT

- ICT as a generic skill
- ICT as specialization
- ICT as a pedagogical tool
- ICT as an access solution
- ICT as a management tool

QINGDAO DECLARATION, May 2015

INTERNATIONAL CONFERENCE ON ICT AND POST-2015 EDUCATION

Seize digital opportunities, lead education transformation

23-25 May 2015, Qingdao, the People's Republic of China

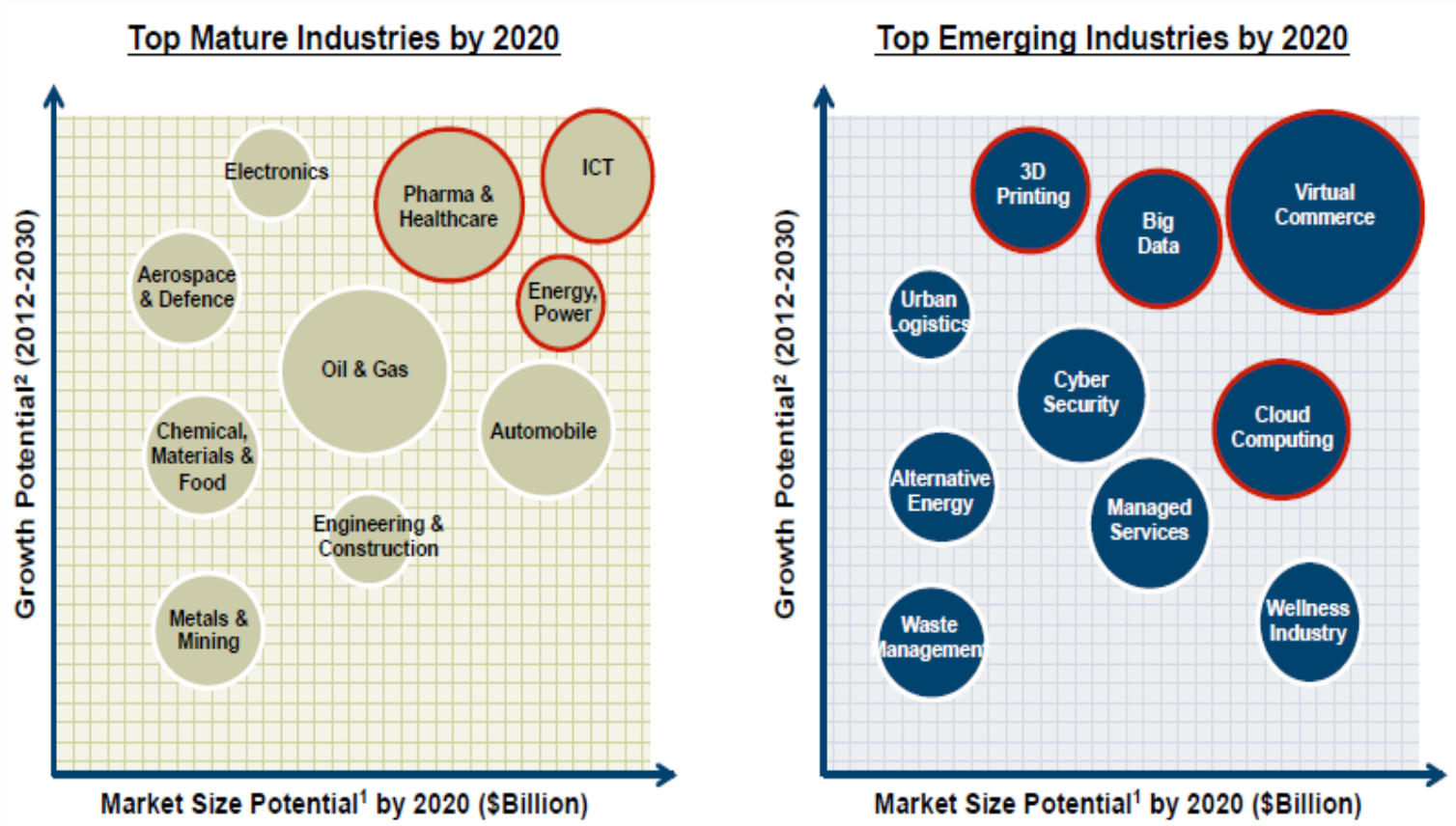
Use of information-processing skills at work, by occupation – OECD (2013)

Occupations are ranked in ascending order of the average use of reading skills at work.

Source: Survey of Adults Skills (PIAAC) (2012), Table A4.17.

StatLink http://dx.doi.org/10.1787/888932901581

Top industries of the future



[1]Relative score assigned for potential annual turnover (revenue / shipment) of the industry in 2025

[1]Measured by qualitative factors that has the scope to create a boom in the industry such as new patents, innovation cycle and industry impact

Source: Bloomberg, Frost and Sullivan Analysis

Drivers for the development of ICT in TVET

- The requirements of knowledge economy
- The increase of ICT in the workplace
- The demand to increase success of initial VET
- The lack of qualified teachers and the requirement to provide opportunities for continuing professional development
- Re-skilling and skills upgrading

(Herd, G. and Maed Richardson, 2015)

TVET Progress Review in Asia-Pacific: Progress since Shanghai Congress 2012

Good overall progress across the region

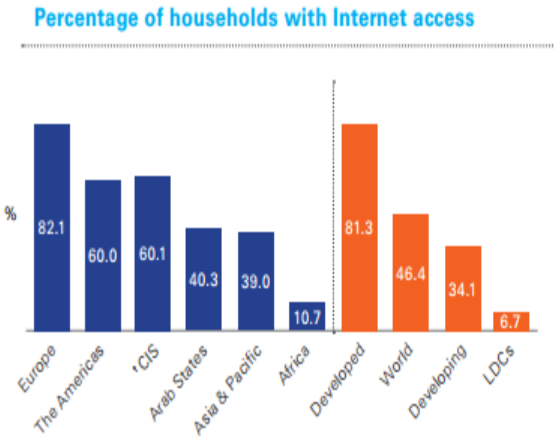
- Offering training in electronic and/or digital technologies
- Emphasising innovation-related (STEM) skills in TVET curriculum
- Integrating electronic and/or digital methods and technologies across TVET curriculum

Challenges

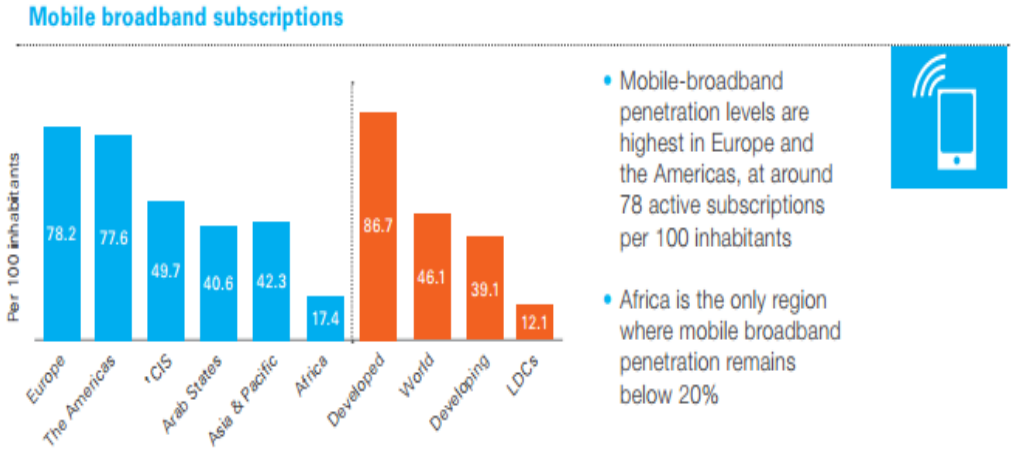
- Evidence of 'digital divide' in use of ICT in TVET
- Low use of ICT-enhanced innovative pedagogies
- Differences in skills sets across region

(Dr Gita Subrahmanyam , 2015)

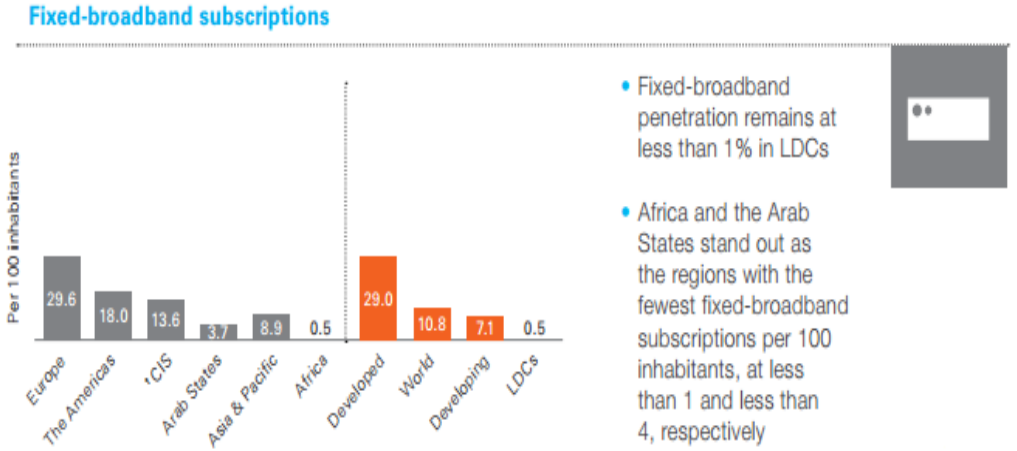
The digital divide in 2015*



- By end 2015, 34% of households in developing countries have Internet access, compared with more than 80% in developed countries
- In least developed countries (LDCs), only 7% of households have Internet access, compared with the world average of 46%



- Mobile-broadband penetration levels are highest in Europe and the Americas, at around 78 active subscriptions per 100 inhabitants
- Africa is the only region where mobile broadband penetration remains below 20%



- Fixed-broadband penetration remains at less than 1% in LDCs
- Africa and the Arab States stand out as the regions with the fewest fixed-broadband subscriptions per 100 inhabitants, at less than 1 and less than 4, respectively

Source: ITU. 2015
Note: * Estimates. † CIS Commonwealth of Independent States

TVET Progress Review in Asia-Pacific: Progress since Shanghai Congress 2012

Promising practices

- ICT-related TVET programmes (Tuvalu, Palau, Bhutan, Lao PDR)
- Policies to promote ICT in TVET (Thailand, Indonesia, Iran, NZ)
- Use of ICT to improve TVET access + equity (Fiji, Philippines, India)
- ICT as a self-help tool for continual skills upgrading (Singapore)

Major obstacles

- Lack of funds (especially, South Asia and Pacific)
- Lack of trained staff with relevant knowledge and expertise
- Inadequate IT, technological and/or physical infrastructure (especially, Pacific)

(Dr Gita Subrahmanyam , 2015)

Factors limiting ICT use in TVET: Bangladesh

Factors	Teachers Opinion	Percentage
Lack of Knowledge	50	47.17%
Absence of skill	45	42.45%
Deficiency of training	**80**	**75.47%**
Shortage of modern ICT tools in Class	75	70.75%
Nonexistence of awareness	50	47.1%
N = 106		

Source: Raihan, M.A Shamim, MR.H. (2013).

Conditions to enable successful use of ICT in TVET

Success factors for effective integration of ICT in TVET

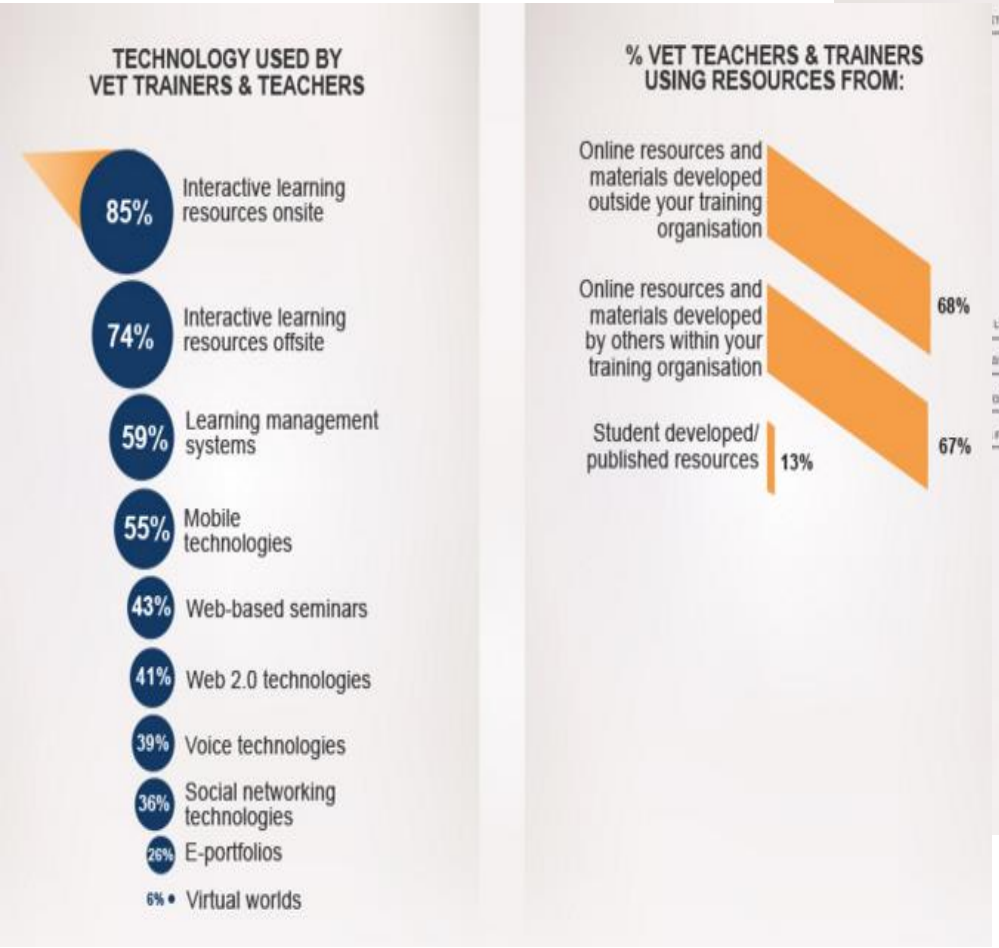
- Enabling national policy
- Effective ICT infrastructure in TVET organization and high speed of the Internet
- Effective ICT resources including software
- Commitment of institutional managers
- Commitment of individuals, including teachers
- Professional development for teachers in recognizing their changing roles
- Support of the champions
- Research on ICT practices

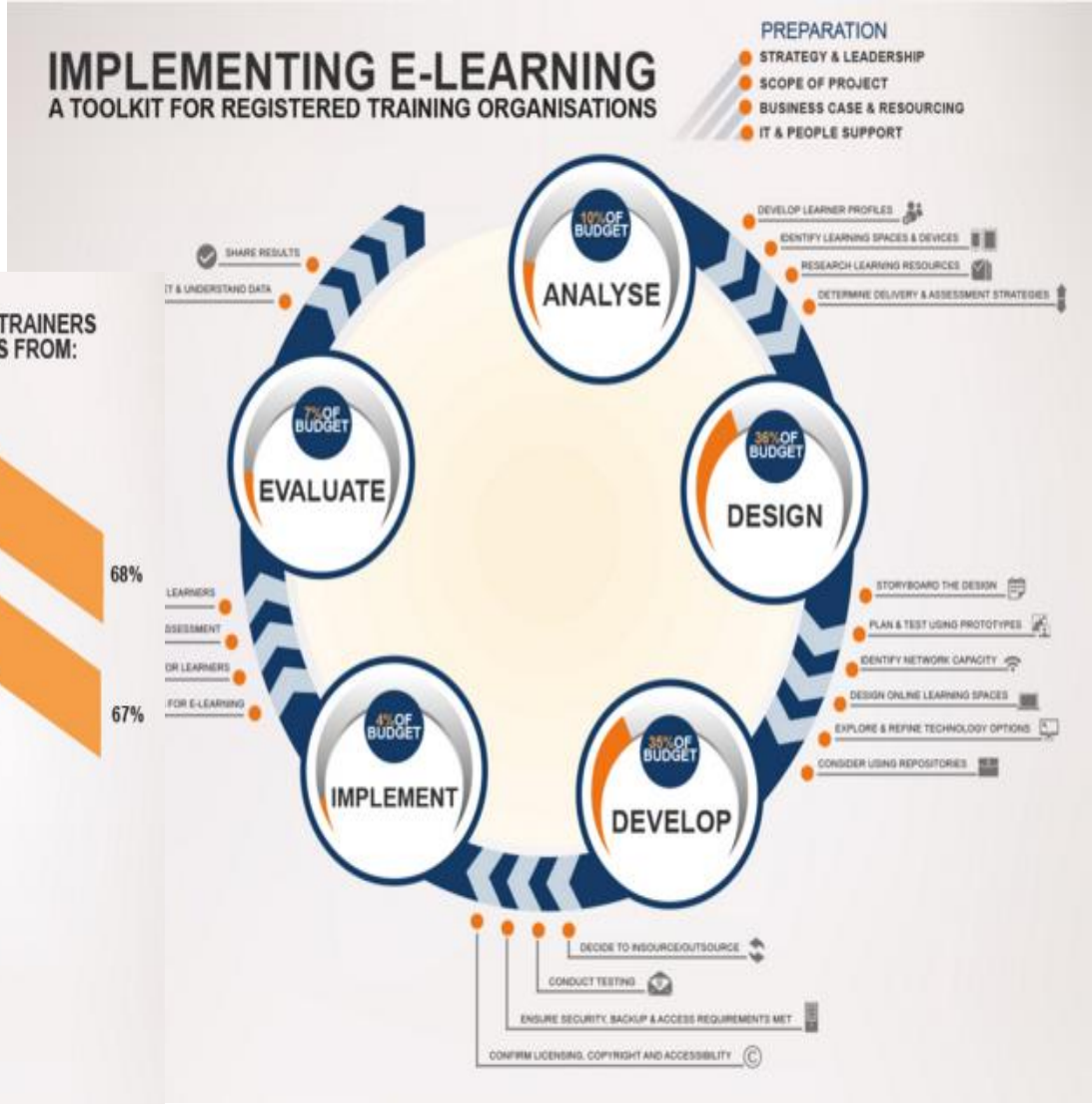
National policies

- Australia – National VET E-learning Strategy - http://www.flexiblelearning.net.au/

- The National Vocational Education and Training E-learning Strategy 2012–2015 ('the Strategy') is aimed at:
  - Strengthening the Australian training sector's use of new learning technologies
  - Stimulating innovative approaches to increasing participation in training and employment
  - Improving the skill levels of the Australian workforce.
  - The Strategy was previously managed by the Flexible Learning Advisory Group (FLAG), a key policy advisory group on national directions and priorities for information and communication technologies in the VET sector. It built on the strengths of previous national strategies, including the former Australian Flexible Learning Framework (2008–2011).

Australia





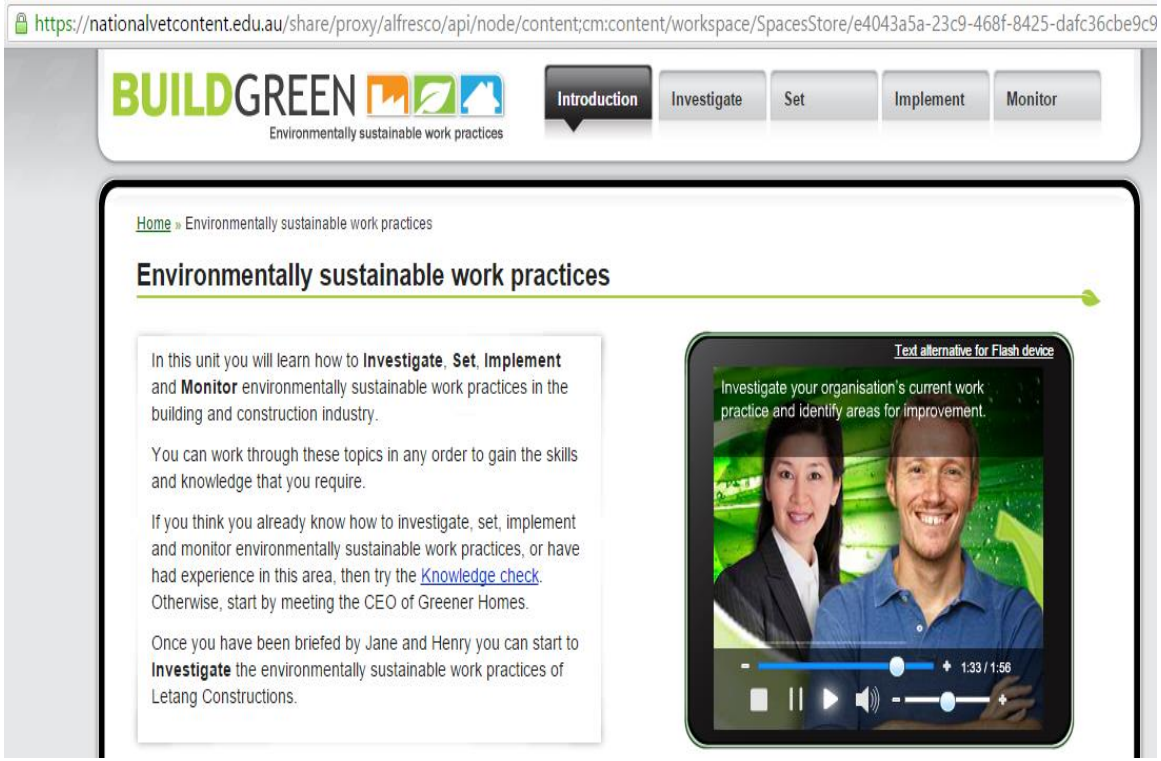
http://flexiblelearning.net.au/infographic/

Curriculum and tools

- Tool boxes by training package area

http://toolboxes.flexiblelearning.net.au/preview/index.htm

The Build Green Toolbox
https://nationalvetcontent.edu.au/share/proxy/alfresco/api/node/content;cm:content/workspace/SpacesStore/e4043a5a-23c9-468f-8425-dafc36cbe9c9/14_02/content_sections/home.htm



Effective ICT resources

IL&FS Skills Development Corporation

http://tinyurl.com/ilfs-skills

Research on ICT practices

Transforming educator and student capability with iTunes U: an action research journey

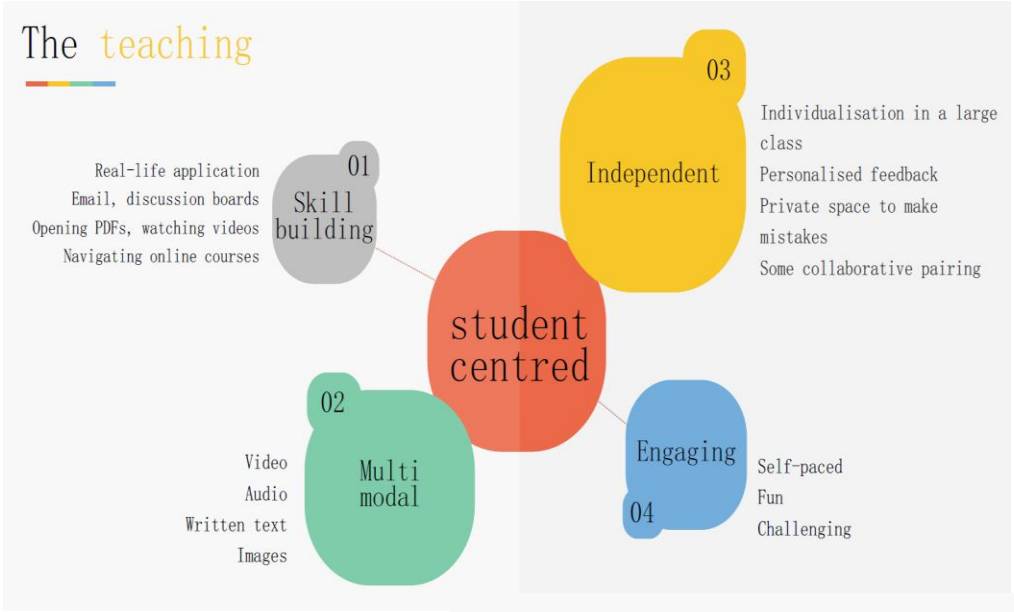
- **Annette Winch and Karen Grice (TAFE, QLD, Australia)**

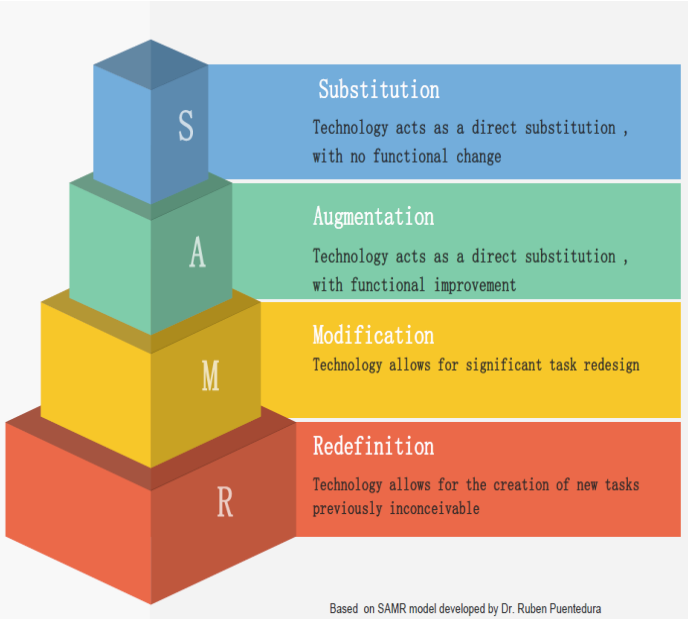
Results:

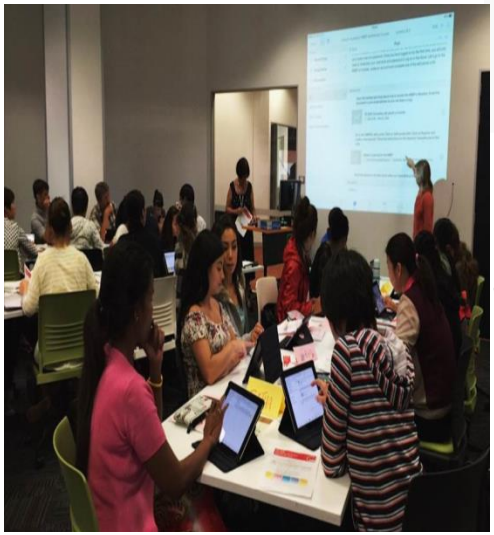
- iTunes U provided a delivery model that increased the digital literacy skills of both students and educators.
- Using iTunes U provides a new mode of collaborative learning in the classroom that is effective in engaging adult ESL learners and improving outcomes for students.
- Technical infrastructure (wifi and Apple IDs) provided significant challenges to the study.
- The project highlighted implications for the way that content is created, distributed and delivered in the AMEP and SEE English language programs.

- http://youtu.be/5hQwFXV1y8s

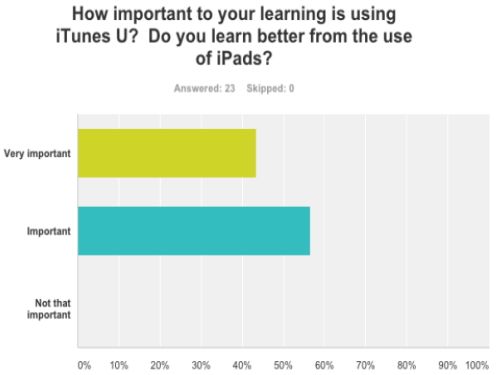
SAMR Transformation Framework

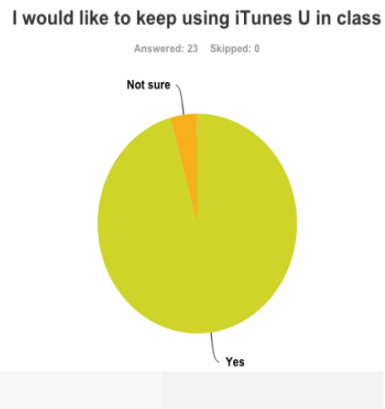


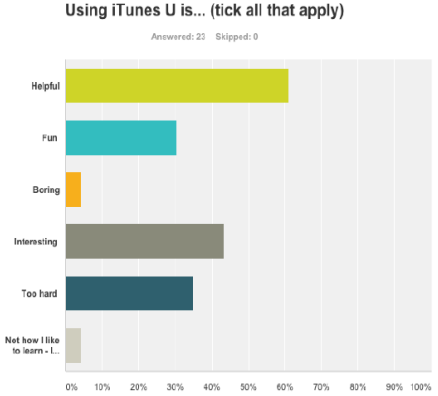




Student engagement surveys







Conclusions: ICT in TVET

- ICT-related developments as a megatrend in the region
- ICT divide to be considered for practice and policy development (improve effectiveness of ICT, access to high speed Internet)
- Interface between technologies and pedagogies
- Systematic approach at different levels (policy, curriculum, infrastructure)
- Utilization of available tools (resources and software)
- Commitment of institutional managers and support for individuals and teachers (PD)
- Capacity building for managers and teachers
- Support of the champions
- One stop for resources (e.g. UNESCO- UNEVOC)

Thank You

Dr. Margarita Pavlova