

Optimizing benefits of ICT for education in developing Asia

A slide show based on the
ICT4Education Research Dissemination Event by
LIRNEasia held on 2016 Nov 26, 2015, at the
Committee Room E, BMICH, Colombo, Sri Lanka



Review questions

- ❑ What do we know about integration of ICT in education in the **Developed world**?
- ❑ What do we know about integration of ICT in education in the **Developing Asia**?
- ❑ How can current ICT4Education policy and practice further inform policy and practice in **Sri Lanka**?

Agenda

- 0945-1030 **What do we know about integration of ICT in education in the developed world?**
Sujata Gamage, Team Leader, Human Capital Research Program, LIRNEasia
- 1045-1245 **What can we learn from ICT in education initiatives in developing Asia?**
Singapore (Longkai Wu, Research Scientist, Office of Education Research, NIE, Singapore)
Bangladesh (Anir Chowdhury, Access to Information Unit, PMO, Bangladesh)
Sri Lanka User Perspective: Gayani Hurulle, Researcher, LIRNEasia
E-Thaksalawa: Neil Gunadasa, Director of Education, Information
Technology Division, Ministry of Education, Sri Lanka
Web Patashala: Dumindra Ratnayake, Former CEO, Etisalat
Guru.lk Kyle Coenraad, Dialog and Hasitha Dela, Headstart
Khan Academy: Chrishan Pereira, eLearning Consultant, ADB
- 1245-0130 **Open Forum: Questions, experiences and way forward**

Participants

1. Ahamed Nishadh, ICTA
2. Anir Chowdhury, Digital Bangladesh
3. Anoja Obeysekera, IT consultant
4. Chrishan Pereira, ADB, Khan Academy
5. D. A. Jayalal, NIE, Sri Lanka
6. Dhamitu Kirtisinghe, Mobitel
7. Dumindra Ratnayake, Former CEO, Etisalat
8. G.M. Niel Gunadasa, Director of Education, IT Unit, MOE
9. Gayani Hurulle, LIRNEasia
10. Hasitha Dela, Headstart
11. Ishara Madushanka, Infogate, Kantale
12. Janakie Karunarathna, Microsoft
13. Kamal Abeysinghe, EDEX
14. Kyle Coenraad, Digital Services Dialog Axiata PLC
15. Longkai Wu, NIE, Singapore
16. Nanda Wanninayake, Horizon Lanka, Mahavilachchiya
17. Nimali Baduraliya, Department of Education, Western Province
18. Rohan Samarajiva, LIRNEasia
19. Shirani Elasinghe, Sarvodaya Fusion
20. Sujata Gamage, LIRNEasia
21. Thanaraj Thaiyamuthu, Horizon Campus, Formerly Open University
22. Thushara Silva, Wijeya Newspapers
23. Vishaka Nanayakkara, University of Moratuwa
24. Wasantha Deshapriya, Secretary, Ministry of Telecommunication & Digital Technology
25. Wimal Gunarathna, Department of Education, Western Province
26. Yashinka Jayasinghe Alles, Microsoft
27. Yudhanjaya Wijeratne, WSO2

What do we know about integration of ICT in education in the **developed world?**

Sujata N Gamage

sujata@lirneasia.net

ICT4Education Research Dissemination Event
2016 Nov 26, Colombo, Sri Lanka



PICO Framework for analysis

Source: Clinical research literature

- Population
- Intervention
- Control or comparisons
- Outcome

POPULATION: Four types seen in the ICT4Education literature

Source: Eu (2013), EC (2014) and PISA/OECD (2015)

At home	Teachers at home	Students at home
In Class	Teachers in class	Students in class
	Teachers	Students

INTERVENTIONS: Typology of tools

Source: EU (2013), EC (2014) and PIAS/OECD (2015)

- **LEARNING TOOLS**

Curricular: E-text books/ Exercises/Quizzes/Tests and their variations using dedicated Web sites; Broadcasts/Podcasts/You Tube;; Game-based learning tools

Other: Other learning tools not directly linked a particular curriculum

- **COMMUNICATION TOOLS**

Use or email /chat to communicate/share materials or ideas with other students/ teachers/or other

- **DATA PROCESSING TOOLS**

Word processing; Spreadsheets; Databases; Multimedia tools: PPT/Audio-visual tools for recording and editing; GIS; Data-logging tools

- **GAMES**

Action, Adventure, Strategy, Simulations, Role-playing, Puzzles

- **OTHER**

OUTCOMES

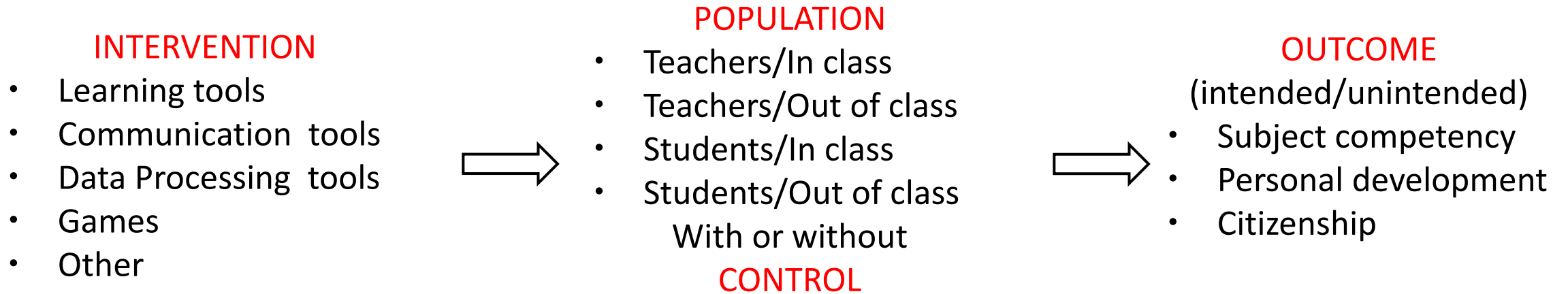
Source: LIRNEasia study*

Learning outcomes can be broadly classified* as:

- Subject competency
- Personal development and
- Citizenship

* http://lirneasia.net/wp-content/uploads/2012/06/00-EP_ActionResearchBrief_2013Aug16.pdf

A detailed PICO framework for ICT4Education initiatives



(1) Descriptive Statistics/Narratives

Based on the:

- European Union (2013). Survey of Schools: ICT in Education. <https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/KK-31-13-401-EN-N.pdf>
- European Commission (2014). The teaching and learning International Survey (TALIS). http://ec.europa.eu/education/library/reports/2014/talis_en.pdf (17 countries including Belgium (Flanders); Bulgaria; Czech Republic; Cyprus; Denmark; Estonia; Spain; Finland; France; Croatia; Italy; Latvia; Netherlands; Poland; Portugal; Romania; Sweden; Slovakia; United Kingdom;
- PISA/OECD (2015). Students Computers and learning. http://www.oecd-ilibrary.org/education/students-computers-and-learning_9789264239555-en

ICTs have not yet been as widely adopted in formal education, and where adopted, no improvements can be seen in student learning outcomes in PISA assessments [PISA/OECD, 2015]

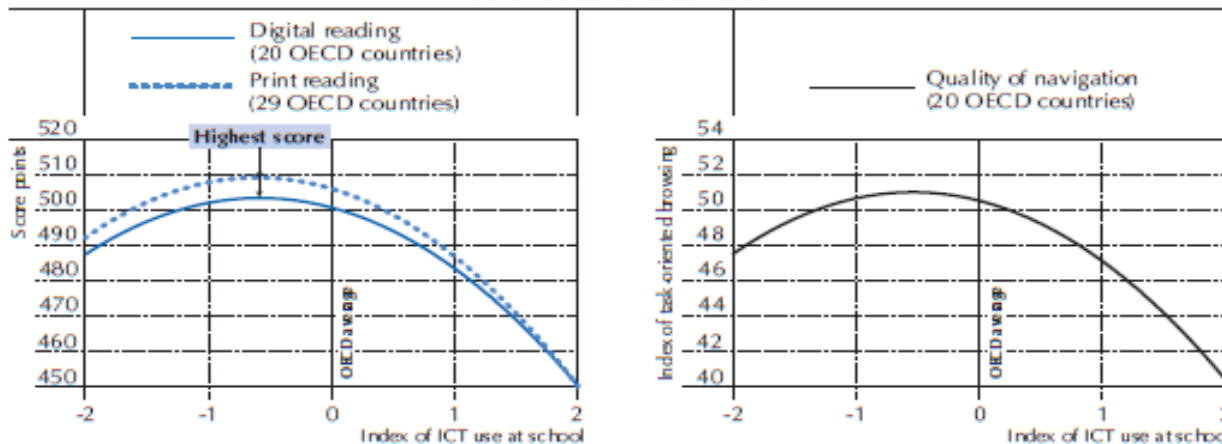
In 2012, 96% of 15-year-old students in OECD countries reported that they have a computer at home, but only 72% reported that they use a desktop, laptop or tablet computer at school. Only 42% of students in Korea and 38% of students in Shanghai-China reported that they use computers at school – and Korea and Shanghai-China were among the top performers in the digital reading and computer-based mathematics tests in the OECD Programme for International Student Assessment (PISA) in 2012. By contrast, **in countries where it is more common for students to use the Internet at school for schoolwork, students' performance in reading declined between 2000 and 2012, on average.**

These findings, based on an analysis of PISA [Program for International Student Assessments] data, tell us that, despite the pervasiveness of information and communication technologies (ICT) in our daily lives, these technologies have not yet been as widely adopted in formal education. But where they are used in the classroom, their impact on student performance is mixed, at best. In fact, PISA results show no appreciable improvements in student achievement in reading, mathematics or science in the countries that had invested heavily in ICT for education.

Learning outcomes increase from no use of ICT in class to some use, but, decrease with higher levels of use

■ Figure 6.5 ■

Students' skills in reading, by index of ICT use at school
OECD average relationship, after accounting for the socio-economic status of students and schools



Notes: The lines represent the predicted values of the respective outcome variable, at varying levels of the *index of ICT use at school*, for students with a value of zero on the *PISA index of economic, social and cultural status (ESCS)*, in schools where the average value of ESCS is zero.

Quality of navigation refers to students' ability to plan and regulate their navigation behaviour on line; this is measured by the *index of task-oriented browsing* (see Chapter 4).

Source: OECD, PISA 2012 Database, Table 6.2.

StatLink  <http://dx.doi.org/10.1787/888933253290>

Time spent online by students, minutes per day

Students spend 25 minutes online per day at school, but 104 minutes per day at home on weekdays and 138 minutes per day on weekends, on average (Finland and Asian countries are below the OECD average)

	In Class	Out of Class, Weekdays	Out of Class, Weekends
Australia	58	130	158
Denmark	48	136	177
Norway	24	136	170
OECD Average	25	104	138
Singapore	20	102	152
Finland	18	99	130
Hong Kong	12	111	164
South Korea	8	59	94

Browse the Internet for schoolwork (%) at least once a week

42-55% of PISA teachers or students browsed the Internet at least once a week for school work at home or school, on average

Country	Teachers		Students	
	At Home	In class	At Home	In class
Australia	-	49	78	81
Denmark	-	66	74	81
Norway	-	82	69	69
PISA Average	45	45	55	42
Finland	-	31	28	35
Singapore	-	59	56	30
Hong Kong	-	48	50	23
South Korea	-	56	59	11

Students' use other than for Internet browsing is limited

At school: Information use: 12-19%; Communication use, 19-21%

At home : Information use: 30%; Communication use, 33-38%

Out of school	Teacher's use of ICT at home (%) at least once a week for : 45 Browsing the Internet 45 Browsing to prepare lessons 44 Browsing for material for lessons 46 Preparing tasks for students 32 Preparing presentations	Students' use of ICT at home (%) at least once a week for : 55 Browsing the Internet 38 Email other students about schoolwork 33 Share school related materials with other students 30 Download/upload from school site 30 Check school web site Minutes per day Students' spend on browsing the Internet: 104 Weekday 125 Weekend
At School	Teachers' use of ICT at school (%) at least once a week for: 46 Browsing the Internet 45 Do projects/classwork (%) at least once a week	Students' use of ICT at school (%) at least once a week for: 42 Browsing the Internet 21 Use email at school 19 Download/upload/browse material from school site 19 Chat online 18 Practice/Drilling for foreign language/math 12 Post work on school website 11 Play simulations Minutes per day Students' spend on browsing the Internet: 25 Weekday
	Teacher	Student

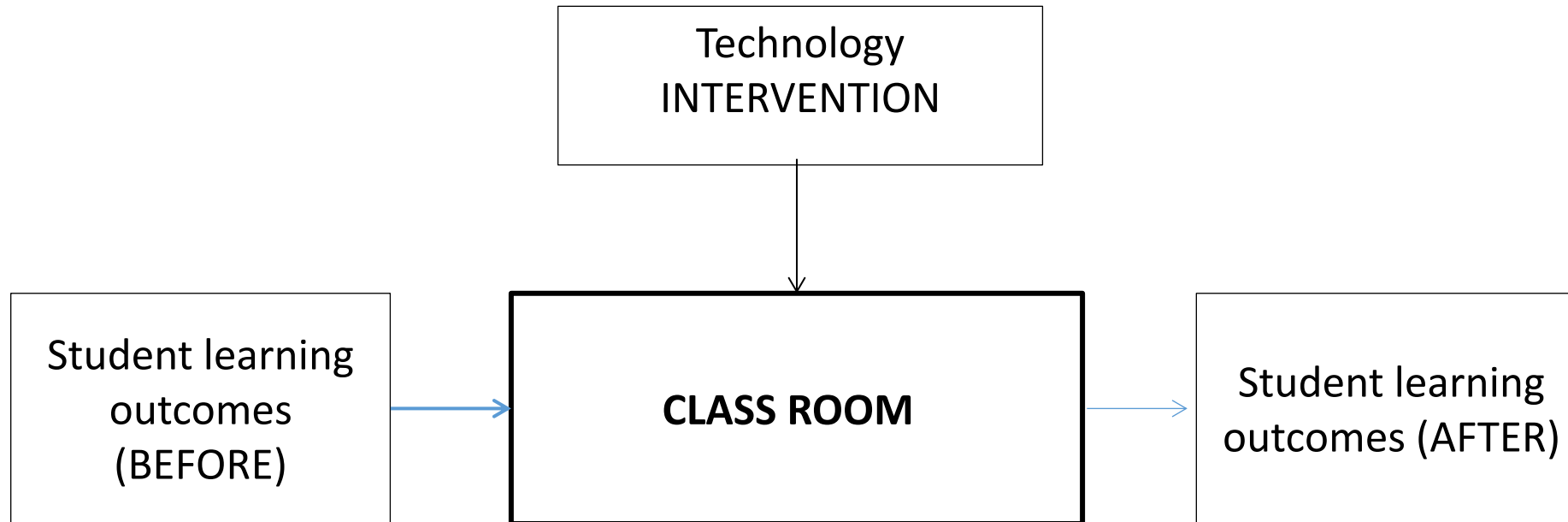
Summary of observations from Descriptive reports

- ❑ Browsing the Internet is the most prevalent activity by teachers or students in class or out of class.
- ❑ Students spend 25 minutes online per day at school, but 104 minutes per day at home on weekdays
- ❑ Students' use of ICT for school work is largely limited to Internet browsing (more so at home than at school)
- ❑ Learning outcomes increase from no use of ICT in class to some use, but, decrease with higher levels of use

Review question arising from descriptive reports

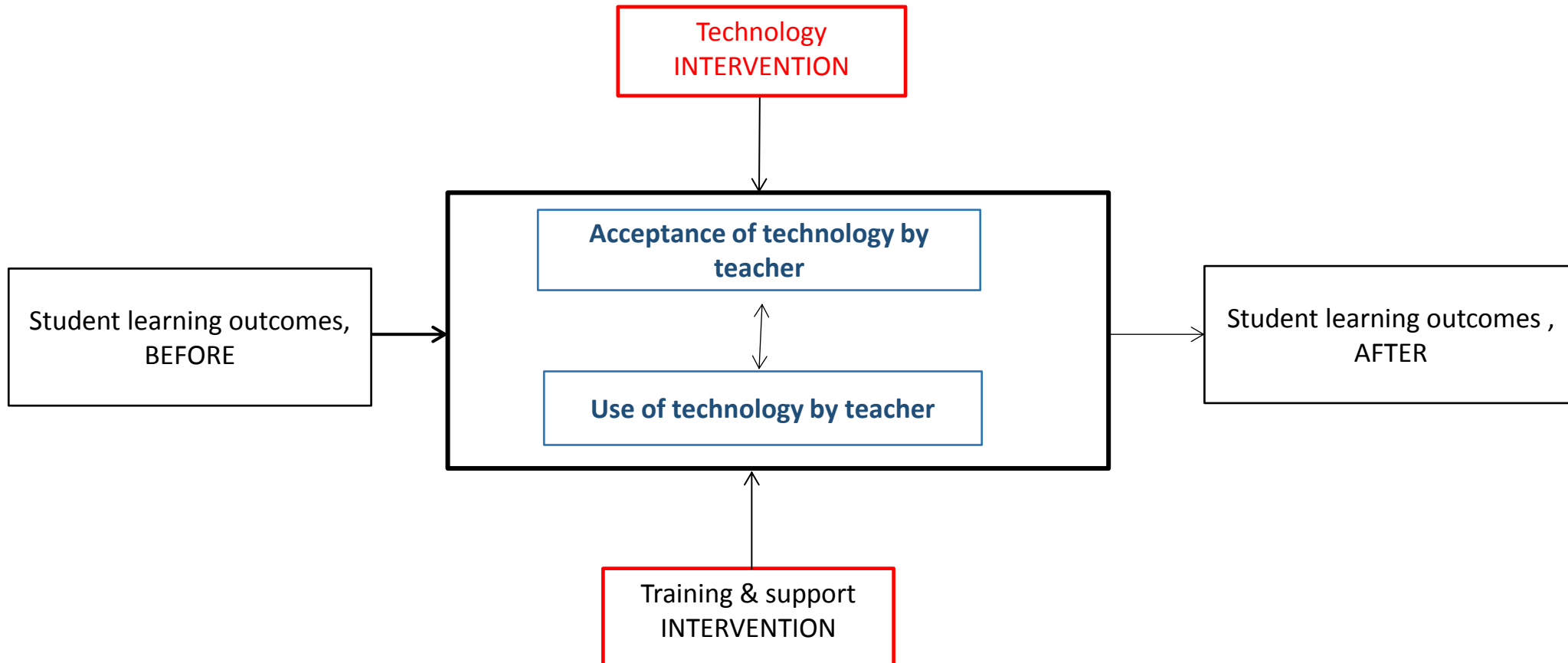
- ❑ How can we get more out of the use of technology in the classroom?

There are many studies/reviews on evaluating the effects of ICT on learning outcomes in K-12 classrooms*, but, few on what happens inside the classroom 'black box'



*Cheung, Alan C.K. and Slavin, Robert E. (2013). The effectiveness of educational technology applications for enhancing mathematics achievement in K-12 classrooms: A meta-analysis. *Educational Research Review* 9 (2013) 88–113; Berlinski, S and Busso, M. (2015). Challenges in Educational Reform: An Experiment on Active Learning in Mathematics. IDB WORKING PAPER SERIES No. IDB-WP-561

Common sense dictates that the ‘acceptance and use of ICTs’ by teachers, a process that happens inside the ‘black box,’ is a prerequisite for student learning outcomes, but, there are no reviews of studies regarding this ‘black box.’



(2) A systematic review of the literature for uncovering effect sizes and/or causal mechanisms on
“Strategies for training/supporting teachers for integration of ICT in K-12 classrooms”

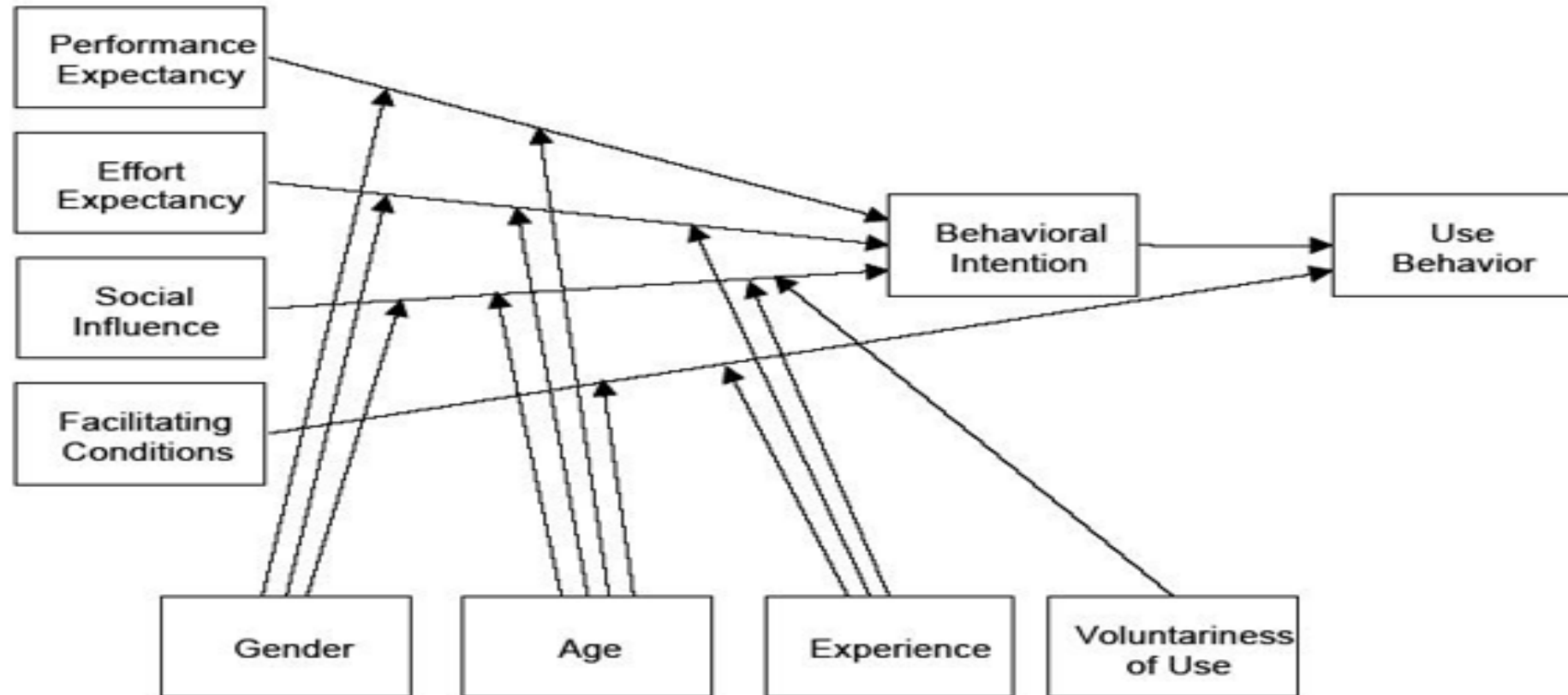
Do not quote because systematic review results reported here are pending review by EPPI.

Review questions

- What strategies are used to train and/or support teachers to integrate ICT in the classroom?
- How has each strategy impacted the success of teachers in integrating ICT in the teaching-learning process?

Theory of change

From the unified theory on technology acceptance and use (UTTAU) by Venkatesh (2003), a variation of the Technology Acceptance Model (TAM)



NOTES:

1. PERFORMANCE EXPECTANCY = Perceptions of usefulness; EFFORT EXPECTANCY = Perceptions of ease of use
2. CAUSAL FACTORS: Perceptions of usefulness, Ease of use, Social influence and Facilitating conditions
3. ATTRIBUTES OF THE POPULATION & INFLUENCING CONDITIONS: Gender, Age, Experience, Voluntariness of use and Other

Systematic Review Process

- ❑ SEARCH Electronic databases/ Hand search /Citations/ Contact/Unknown
- ❑ SCREEN Inclusion/exclusion criteria for relevance to the review question
- ❑ ASSESS Risk of bias analysis for quality of studies
- ❑ EXTRACT Population/Intervention/Comparison/Outcomes/Causal mechanism
- ❑ SYNTHESIZE Effect sizes or relationship estimates

The Systematic Review protocol for ICT use in K-12 classrooms

- ❑ SEARCH ERIC, EBSCO, SCOPUS, SSCI and Proquest
- ❑ SCREEN1 (1) concern integration of technology in a classroom, school or school system; (2) published in 1990 or after; (3) focus on primary, secondary education; (4) empirical studies that measure technology use in K-12 classrooms
- ❑ SCREEN2 Evaluations: The design is experimental (RCT) or quasi-experimental
Explorations: The technology is specified and the TAM theory is used
- ❑ ASSESS Risk of bias analysis (Sampling bias, Confounding variable bias, Motivation bias, Spill-over bias, Reporting bias and Other biases)
- ❑ SYNTHESIZE Effect size calculation (1) response ratio and (2) standardized mean difference (SMD)

Please do not quote. Systematic review results reported here are pending review by EPPI.

Results of the screening process

<input type="checkbox"/> SEARCH	11,419 Reports	Eval./Expl./Mthd./Rev./Desc.
<input type="checkbox"/> SCREEN1	63 Reports	5 Evaluations/ 58 Explorations
<input type="checkbox"/> SCREEN2	13 Reports	5 Evaluations/ 8 Explorations
<input type="checkbox"/> ASSESS	9 Reports	2 Evaluations/7 Explorations
<input type="checkbox"/> SYNTHESIZE	9 Reports	See next few slides for details

Please do not quote. Systematic review results reported here are pending review by EPPI.

Five EVALUATION reports included

with the two reports selected for synthesis with effect size calculation marked with asterisks

	CITATION-SHORT	CITATION	TECHNOLOGY
1	Lowther-2003*	Lowther, Deborah L.; Steven M. Ross; Gary M. Morrison (2003). When Each One Has One: The Influences on Teaching Strategies and Student Achievement of Using Laptops in the Classroom. ETR&D, Vol. 51, No. 3, 2003, pp. 23–44 ISSN 1042–1629	OLPC
2	Lowther-2008*	Lowther, Deborah; J. Dan Strahl, Fethi A. Inan, and Steven M. Ross (2008). Does Technology Integration “Work” When Key Barriers are Removed? Paper presented at the annual meeting of the American Educational Research Association in New York, NY March 2008.	On site technology coaches , Customized Lessons
3	Mayo-2005	Mayo, N. B., Lawrence, T. K. (2005). Longitudinal Study of Technology Training to Prepare Future Teachers. Educational Research Quarterly.	Generic
4	Pass-2008	Pass, Delia Raymos (2005). Effects of a Professional Development Initiative on Technology Innovation in the Elementary School, UNF Theses and Dissertations. http://digitalcommons.unf.edu/etd/273	Web based instructional resource
5	Skoertz-2001	Skoretz, Yvonne M. (2011). A Study of the Impact of a School-Based, Job-Embedded Professional Development Program on Elementary and Middle School Teacher Efficacy for Technology Integration" (2011). PhD dissertation.	Generic

Please do not quote. Systematic review results reported here are pending review by EPPI.

Sixty three EXPLORATION reports included

Only the seven reports selected for synthesis shown here. Please see the SR report for details on all 63

	CITATION-SHORT	CITATION	Technology
1	DeSmet-2012	De Smet C., Bourgonjon J., De Wever, B., Schellens, T., Valcke, M. (2012). Researching instructional use and the technology acceptance of learning management systems by secondary school teachers. <i>Computers & Education</i> 58 (2012) 688–696	LMS-Information use
2	Kim-2009	Kim, M-R., Choi, M-A., Kim, Jayhyoun (2012). Factors influencing the usage and acceptance of multi-media based digital textbooks in pilot schools. <i>KSII Transactions on Internet and Information Systems</i> ,	Digital text book pilot
3	Lay-2013	Lay, Jinn-Guey Lay, Yu-Lin Chi, Yeu-Sheng Hsieh, Yu-Wen Chen (2013). What influences geography teachers' usage of geographic information systems? A structural equation analysis, <i>Computers & Education</i> 62 (2013) 191–195	GIS
4	Pynoo-2011	Pynoo, B. , Devolder, P., Tondeur, J., van Braak, J., Duyck, W., Duyck, P. (2011). <i>Computers in Human Behavior</i> 27 (2011) 568–575	DLE
5	Pynoo-2012	Pynoo, B., Jo Tondeur, J., van Braak ,J., Duyck, W., Sijnave ,B. , Duyck, P. (2012). Teachers' acceptance and use of an educational portal. <i>Computers & Education</i> 58 (2012) 1308–1317	Education Portal
6	Teo-2001	Teo, Hock-Hai and Kwok-Kee Wei (2001). <i>J. Educational Computing Research</i> , Vol. 25(4) 385-415, 2001 Effective use of computer aided instruction in secondary schools: a causal model of institutional factors and teachers' roles	Algebra software
7	Van Acker-	Van Acker, F., van Buuren, H., Kreijns, K., Vermeulen, M. (2013). <i>Education and Information Technologies</i> , Volume 18, Issue 3	Digital learning materials

Please do not quote. Systematic review results reported here are pending review by EPPI.

Effect sizes

Lowther-2003.

Population	Intervention	Control	Outcome	ES Mean (Std. Error)	ES Range
Students in 12 classes distributed across Grade 5, 6 and 7 and each class with a teacher who received computer integration training	OLPC with 24 hour access to computers for students	9 classes with 5+ computers per class distributed across Grade 5, 6 and 7 and each with a teacher who received computer integration training	Uses technology as a learning tool, Grade 6 (Table 5)	+1.31	
			Uses technology as a learning tool, Grade 5 (Table 5)	+1.25	
			Level of student attention or interest (Table 5)	+0.89	
			Identifies what needs to be known to solve a problem , Grade 5 (Table 8)	+0.45	
			Identifies what needs to be known to solve a problem , Grade 6 (Table 8)	+0.45	
			Use of higher-level questioning (Table 5)	-1.08	

Notes: 1. Uses technology as a learning tool includes uses in Internet research, spreadsheet or database creation, multimedia, CD-ROM, Laser disk; The last four outcomes concern learning outcomes . The last two outcomes are learning outcomes. Included here to demonstrate that effect sizes for learning outcomes can be much smaller than 'technology use' outcomes. 2. For Cohen's d an effect size of 0.2 to 0.3 might be a "small" effect, around 0.5 a "medium" effect and 0.8 to infinity, a "large" effect.[7]:25 (Cohen's d might be larger than one.

Please do not quote. Systematic review results reported here are pending review by EPPI.

Effect sizes

Lowther-2008.

Population	Intervention	Control	Outcomes	ES Mean (Std. Error)	ES Range
Approximately quarter of a sample of 28,735 students and 1,746 teachers in 26 schools with no technology coaches	On-site technology coaches to prepare teachers to create lessons that engage students in critical thinking and use of computers as tools	Approximately quarter of a sample of 28,735 students and 1,746 teachers in 26 schools with no technology coaches	Technology as a learning tool or resource, Launch 1 (SOM, Table 4)	+1.15	
			Technology as a learning tool or resource, Launch 2 (SOM, Table 4)	+0.91	
			Meaningful use of computers, Launch 1 (Table 7, OCU)	+1.06	
			Meaningful use of computers, Launch 2 (Table 7, OCU)	+0.49	
			Higher level questioning strategies, Launch 2 (Table 5, RSCA)	+0.21	
			Higher level questioning strategies, Launch 1 (Table 5, RSCA)	-0.21	

NOTES:

1. Uses technology as a learning tool: includes uses in Internet research, spreadsheet or database creation, multimedia, CD-ROM, Laser disk ; The last two outcomes are learning outcomes. Included here to demonstrate that effect sizes for learning outcomes can be much smaller than 'technology use' outcomes.
2. Meaningful use of computers: Based on observations of the extent to which technology was integrated with teaching and learning

Please do not quote. Systematic review results reported here are pending review by EPPI.

Relationship of PU to PEOU

Based on eight studies from seven reports that explore the relationship between the Use of technology by teachers and their perceptions of Ease of use (PEoU), Usefulness (PU), Social influence and Facilitating conditions.; Meaningful calculations were possible only for the PU/PeoU ratio.

Paper	Intervention	RoB	ES (PU)/PEoU Mean *(Std Error)	ES (PU)/PEoU Range
Van Acker-2013-Netherland	Digital learning materials (DLM)	Low	2.79 (0.05)	2.7-2.9
Kim-2009-Korea	Digital text book pilot	Med	2.70 (0.70)	1.3-4.1
Lay-2013-Taiwan	GIS for geography curriculum	Low	2.65 (0.07)	2.5-2.8
Pynoo-2012-Belgium	Klasscement portal for teachers	Med	2.09 (0.06)	2.0-2.2
Teo-2001-Singapore	ICT use by Algebra teachers	Low	2.05 (0.20)	1.6-2.4
DeSmet-2012-Belgium	Learning management system (LMS) for Communication use	Low	1.29 (0.09)	1.1-1.5
DeSmet-2012-Belgium	Learning management system (LMS) for information use	Low	0.89 (0.08)	0.7-1.0
Pynoo-2011-Belgium	Digital learning environment (DLE)	Low	0.50 (0.21)	0.1-0.9

Please do not quote. Systematic review results reported here are pending review by EPPI.

Summary of results from the systematic review of EVALUATIONS and EXPLORATIONS on

“Strategies for training or supporting teachers to integrate a technology in the classroom

A search for reports relating to technology use in K-12 classrooms and published between 1990 and July 2014 yielded 11,419 reports. Of these, 64 reports met inclusion criteria relevant to the review topic, but, of those only 2 evaluation reports and 7 reports exploring relationships were identified as of sufficient internal and external validity for calculating the effect size of strategies to train or support teachers. (Surprisingly, All five evaluation reports were from the 2001-2010 period. there were no evaluation reports for the 2011 to 2015 period.)

The two evaluation reports show that teacher training along with facilitating conditions - in the form of (1) one laptop per child and (2) on-site coaches - increase technology integration by effect sizes ranging from +0.49 to +1.31 compared to the control with no such facilitating conditions.

The exploration reports showed that in introducing a specific technology which is integrated into the curriculum, the perceptions of teachers regarding the usefulness of particular technology is twice as important as their perception of the ease of use of that particular technology. It is difficult to make generalizations when the technology intervention is not specified.

Please do not quote. Systematic review results reported here are pending review by EPPI.

What do we know about integration of ICT in education in Developing Asia?

Sujata N Gamage

sujata@lirneasia.net

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2016 Nov 26, Colombo, Sri Lanka



Bangladesh

Highlight

- Teachers' wanted tools to search and incorporate digital materials in their lessons. Teacher portal for and by teachers containing lesson plans incorporating is one success story

See http://lirneasia.net/wp-content/uploads/2015/11/1-Chowdhury_2015_Nov26.pdf for presentation by

Anir Chowdhury, Policy Advisor, Access to Information (a2i), Prime Minister's Office

Singapore

Highlight

- Scaling up innovations by NIE is a slow and expensive process

See http://lirneasia.net/wp-content/uploads/2015/11/1-Longkai_NIE-2015Nov26.pdf for presentation by Longkai WU, National Institute of Education (NIE)/Nanyang Technological University

Sri Lanka

- Online e-texts or e-tutorials (e.g. E-thaksalawa, Web Patashala, guru.lk and Khan academy) are available, but, Internet access is only in 11.4% of households
- DVDs of tutorials are available through Khan academy-Sinhala/Tamil, Sri Lanka
- Broadcast tutorials available free for schools through Nenasa broadcasts from Dialog
- There is no effort to change the teaching and learning process from the current content focus to a more holistic education.

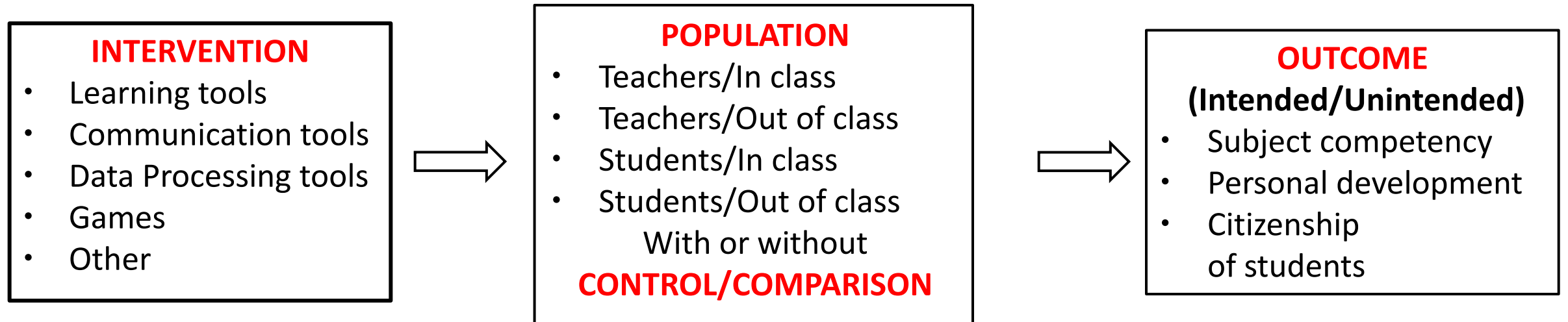
Implications for ICT use in education

ICT4Education Research Dissemination Event

2016 Nov 26, Colombo, Sri Lanka



A **PICO-ToC** Framework for planning, implementing and evaluating



THEORY OF CHANGE (ToC)

Causal Factors: Ease of Use; Usefulness; Social influence and Facilitating conditions; **Attributes of the population:** Age, Gender, Experience, Voluntariness and Other; **Other conditions** with power to influence the process

Source: Venkatesh (2003) and Sayer, Andrew (1993). Method in social science: A realist approach. Routledge, New York

Issues for consideration in ICT4Education initiatives

- ❑ Always make sure that you understand the Population, Intervention and the Outcomes (PIOs) concerned and the Theory of Change (ToC) linking the intervention to the outcome .
- ❑ Note that learning outcomes are possible only if the technology is used in the classroom in the teaching and learning process. Therefore, your causal mechanism should always include 'technology use' as an intermediate step.
- ❑ Evaluate both technology use and learning outcomes.

LIRNEAsia's systematic review with two evaluation reports reveals positive outcomes with effect sizes of +1.3 to 1.6 when in-service training was accompanied by OLPC and effect sizes of 0.49 to 1.15 when teachers re provided with on site technology coaches.

- ❑ If teachers are convinced of the usefulness of a technology, usability can be a secondary concern.

LIRNEAsia's systematic review using four exploration studies show that Perception of usefulness can be twice as important as perception of ease of use in acceptance and use of ICT by teachers .

Implications for ICT use in education in Sri Lanka

ICT4Education Research Dissemination Event
2016 Nov 26, Colombo, Sri Lanka



Sri Parakramabahu Maha Vidyalaya, Colombo 5, ~300 students

Unused infrastructure, green space and families/students ready to stay after school for tutoring



Window of opportunity in Sri Lanka

A possible window of opportunity for ICT4Education initiatives in Sri Lanka or in the developing world is to focus on students' use after class where,

- **POPULATION:** Children from disadvantaged communities staying after school in school premises
- **INTERVENTION:** Guided use of a variety of ICT tools, increasing from 'no use' to 'some use' and staying within a 'safe' range of ICT use within a comprehensive program that includes other physical activities
- **OUTCOMES:** Subject competency plus personal development and citizenship

Thank you