E-learning opportunities in the Asian global south

Ayesha Zainudeen & Tharaka Amarasinghe

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LIRNEasia: a pro-poor, pro-market Asia Pacific think tank; focus on infrastructure policy and regulation

Our Mission:
“Catalyzing policy change through research to improve people’s lives in the emerging Asia Pacific by facilitating their use of hard and soft infrastructures through the use of knowledge, information and technology”
Findings from AfterAccess survey
ICT device and internet access among the 15-65 population
The bigger picture: What we know

• 78% of Sri Lankans aged 15-65 own a mobile
  • Almost half of those mobiles are still basic phones

• 37% of Sri Lankans (15-65) use “the internet”
  • Mostly via smartphones; mostly social media
  • Gender gaps, rural-urban gaps exist
**Sri Lanka:** 78% aged 15-65 population have a mobile phone of some type (individual level)

**Q1:** Do you own a mobile phone?

**Q2:** How many active SIM cards do you have, (SIM cards that you used in last 30 days)?

**Q3:** Do you own a personal Desktop computer or Laptop?

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**Table:**

<table>
<thead>
<tr>
<th>Country</th>
<th>All respondents</th>
<th>Mobile phone</th>
<th>Desktop/laptop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>1,240</td>
<td>91%</td>
<td>28%</td>
</tr>
<tr>
<td>Colombia</td>
<td>1,425</td>
<td>75%</td>
<td>42%</td>
</tr>
<tr>
<td>South Africa</td>
<td>1,630</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Peru</td>
<td>1,478</td>
<td>84%</td>
<td>21%</td>
</tr>
<tr>
<td>Paraguay</td>
<td>1,397</td>
<td>89%</td>
<td>42%</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>2,017</td>
<td>78%</td>
<td>12%</td>
</tr>
<tr>
<td>Ecuador</td>
<td>1,420</td>
<td>78%</td>
<td>12%</td>
</tr>
<tr>
<td>Guatemala</td>
<td>1,407</td>
<td>88%</td>
<td>6%</td>
</tr>
<tr>
<td>India</td>
<td>5,069</td>
<td>75%</td>
<td>75%</td>
</tr>
<tr>
<td>Pakistan</td>
<td>2,002</td>
<td>61%</td>
<td>8%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>1,706</td>
<td>74%</td>
<td>8%</td>
</tr>
<tr>
<td>Myanmar</td>
<td>2,002</td>
<td>61%</td>
<td>8%</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>2,123</td>
<td>68%</td>
<td>6%</td>
</tr>
<tr>
<td>Cambodia</td>
<td>1,844</td>
<td>82%</td>
<td>6%</td>
</tr>
<tr>
<td>Lesotho</td>
<td>1,118</td>
<td>79%</td>
<td>9%</td>
</tr>
<tr>
<td>Senegal</td>
<td>2,020</td>
<td>79%</td>
<td>9%</td>
</tr>
<tr>
<td>Kenya</td>
<td>2,123</td>
<td>87%</td>
<td>6%</td>
</tr>
<tr>
<td>Tanzania</td>
<td>1,091</td>
<td>72%</td>
<td>5%</td>
</tr>
<tr>
<td>Nepal</td>
<td>1,179</td>
<td>61%</td>
<td>5%</td>
</tr>
<tr>
<td>Rwanda</td>
<td>2,008</td>
<td>50%</td>
<td>5%</td>
</tr>
<tr>
<td>Uganda</td>
<td>1,757</td>
<td>50%</td>
<td>5%</td>
</tr>
<tr>
<td>Mozambique</td>
<td>1,091</td>
<td>40%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Note:** Countries ordered left-right by descending GNI/capita ordering.
Internet awareness and use (% of aged 15-65 population)

Q1: Do you know what the Internet is?
Q2: Have you ever used the Internet (Gmail, Google, Facebook, email)?
TV and radio are available in ~90% of households.

Household TV and Radio ownership and use (% all households and of aged 15-65 population)

Q1: How many working mobile phones does your household have?
Q2: Does your household have a working radio?
Q3: How many hours a day do you watch the TV on average?
Q4: How many hours a day do you listen to radio on average?

<table>
<thead>
<tr>
<th>Country</th>
<th>Household access to TV</th>
<th>Household access to radio</th>
<th>Watching TV</th>
<th>Listening to radio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Lanka</td>
<td>91%</td>
<td>84%</td>
<td>52%</td>
<td>62%</td>
</tr>
<tr>
<td>India</td>
<td>62%</td>
<td>66%</td>
<td>18%</td>
<td>7%</td>
</tr>
<tr>
<td>Pakistan</td>
<td>62%</td>
<td>58%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>56%</td>
<td>64%</td>
<td>5%</td>
<td>18%</td>
</tr>
<tr>
<td>Cambodia</td>
<td>66%</td>
<td>69%</td>
<td>25%</td>
<td>57%</td>
</tr>
<tr>
<td>Nepal</td>
<td>57%</td>
<td>56%</td>
<td>36%</td>
<td>29%</td>
</tr>
</tbody>
</table>

Base:
- Sri Lanka: 2,017
- India: 5,069
- Bangladesh: 2,020
- Cambodia: 2,123
- Nepal: 2,008
ICT device and internet access among households with children
Less than half of all households with children in Sri Lanka can avail of e-learning opportunities.

34% of households with children (age less than 18) have an internet connection.

48% of households with children (age less than 18) have a smartphone* or computer.

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Household availability of internet connection, smartphones & computers (% households with children)

- Internet via mobile phones/dongles: 3%
- Internet via fibre, ADSL or wireless internet: 15%
- Availability of smartphones*: 34%
- Availability of laptops: 48%
- Availability of desktops: 48%
- Availability of tabs: 48%

Q1: How many working computers (desktops, laptops or tabs) does your household have?
Q2: What type of mobile phone do you own?
Q3: Does this household have a working Internet connection, if so what type? (one that is exclusive for the household and is accessible to all household members)

Base: Sri Lanka
Households with children (18 or below): 1,301

* Based on statistical modeling of survey data.
Nepal (lower GNI/capita) is ahead of Sri Lanka

Household availability of internet connection, smartphones & computers (% households with children)

- **34%** of households with children (age less than 18) have an internet connection in Nepal.
- **48%** of households with children (age less than 18) have a smartphone* or computer in Nepal.
- **20%** of households with children (age less than 18) have an internet connection in India.
- **45%** of households with children (age less than 18) have a smartphone* or computer in India.
- **27%** of households with children (age less than 18) have a smartphone* or computer in Sri Lanka.
- **48%** of households with children (age less than 18) have an internet connection in Sri Lanka.
- **11%** of households with children (age less than 18) have an internet connection in Bangladesh.
- **47%** of households with children (age less than 18) have a smartphone* or computer in Bangladesh.
- **5%** of households with children (age less than 18) have an internet connection in Pakistan.
- **45%** of households with children (age less than 18) have a smartphone* or computer in Pakistan.
- **4%** of households with children (age less than 18) have an internet connection in Cambodia.
- **21%** of households with children (age less than 18) have a smartphone* or computer in Cambodia.
- **8%** of households with children (age less than 18) have an internet connection in Nepal.
- **48%** of households with children (age less than 18) have a smartphone* or computer in Nepal.

**Base:** Households with children age less than 18

<table>
<thead>
<tr>
<th>Country</th>
<th>Households with children age less than 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Lanka</td>
<td>1,301</td>
</tr>
<tr>
<td>India</td>
<td>3,580</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1,744</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>1,606</td>
</tr>
<tr>
<td>Cambodia</td>
<td>1,730</td>
</tr>
<tr>
<td>Nepal</td>
<td>1,605</td>
</tr>
</tbody>
</table>
Large disparity between richer and poorer households

Household availability of internet connection, smartphones & computers
(% households with children)

Availability of active internet connection
Availability of smartphone* or computers

SEC A
71%
59%

SEC B
57%
46%

SEC C
56%
36%

SEC D
56%
33%

SEC E
55%
25%

Availability of active internet connection
Availability of smartphone* or computers

Urban
55%
44%

Rural
47%
33%

Base
Households with children age less than 18
Sri Lanka 1,301
India 3,580
Pakistan 1,744
Bangladesh 1,606
Cambodia 1,730
Nepal 1,605
Affordability is a barrier
Q: Please tell me the primary reason why you have chosen not to obtain a smartphone or touch phone handset?

Primary reason for not owning a smartphone (% of aged 15-65 basic or feature phone owners)

- I do not need one (a feature/basic phone is sufficient for me) 60%
- I cannot afford one/it is too expensive 23%
- It is too complicated for me/I do not know how to use one 10%
- I do not know what that is 2%
- I was not allowed to get one 2%
- They are not available where I live 0%
- Other 3%

23% of basic/feature phone owners ‘can’t afford a smartphone’
Cost of 1GB is not affordable for 60% of the population

- Broadband Commission’s affordability target for 2025: **1GB mobile broadband should cost no more than 2% monthly income**
- Sri Lanka meets the target as a country (~0.49% monthly income)
- BUT, Decile analysis → 1GB not ‘affordable’ for the poorer 60% of the population

<table>
<thead>
<tr>
<th>Income decile group</th>
<th>Mean monthly per capita income by decile USD, 2016</th>
<th>Mobile BB 1 GB, as a % of individual income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decile 1 (poorest)</td>
<td>23.86</td>
<td>7.5%</td>
</tr>
<tr>
<td>Decile 2</td>
<td>39.12</td>
<td>4.6%</td>
</tr>
<tr>
<td>Decile 3</td>
<td>50.16</td>
<td>3.6%</td>
</tr>
<tr>
<td>Decile 4</td>
<td>60.63</td>
<td>3.0%</td>
</tr>
<tr>
<td>Decile 5</td>
<td>71.81</td>
<td>2.5%</td>
</tr>
<tr>
<td>Decile 6</td>
<td>84.61</td>
<td>2.1%</td>
</tr>
<tr>
<td>Decile 7</td>
<td>101.55</td>
<td>1.8%</td>
</tr>
<tr>
<td>Decile 8</td>
<td>125.41</td>
<td>1.4%</td>
</tr>
<tr>
<td>Decile 9</td>
<td>169.81</td>
<td>1.1%</td>
</tr>
<tr>
<td>Decile 10 (richest)</td>
<td>397.08</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

Sources: ITU ICT Price Baskets, 2018; Department of Census & Statistics, Household Income and Expenditure Survey 2016
Skills?
Are parents and kids equipped with skills to learn effectively online?
Just 40% have done more than search for info online. But basic skills are not the end goal; what about skills for a safe & secure online experience?

**Experience performing the tasks listed (% of aged 15-65 mobile phone owners)**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search for information on other content on the Internet/online</td>
<td>36%</td>
</tr>
<tr>
<td>Post any information on the Internet/online. This can include commenting on something that you see,</td>
<td>30%</td>
</tr>
<tr>
<td>Install an application</td>
<td>32%</td>
</tr>
<tr>
<td>Create log-in details (user) and a password to use a particular service or a website, etc</td>
<td>32%</td>
</tr>
<tr>
<td>Locate and adjust settings on an application or service</td>
<td>32%</td>
</tr>
</tbody>
</table>

40% of mobile phone owners done at least one of these activities before

Q: Can you please tell me, which of the following activities you have ever done on your mobile or on the internet/online?

**Base Sri Lanka**

<table>
<thead>
<tr>
<th></th>
<th>Mobile phone owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>1,609</td>
</tr>
</tbody>
</table>
THANK YOU
Annex: About AfterAccess
“Old fashioned telecom sector stuff”: Evidence based inputs into ICT Sector reforms
- E.g. India Universal Service Policy, Myanmar Telecom Law, Bangladesh telecom license renewal, Indonesia in-country back-haul pricing, S and S East Asia Broadband quality measurement, assessments of the telecom regulatory environments ……etc.

ICTs for development, ICTs in non-ICT sectors
- Agriculture: does more market price/other information through mobiles help agriculture markets work better and give farmers better livelihoods?
- Disaster Risk Reduction: models for ICT-based early warning systems for natural disasters in Maldives, Sri Lanka

Other infrastructure: Roads, electricity, health, etc. Often using big data analytics
- Historical, pseudonymized CDRs from multiple telcos
- Where will disease spread? Where are traffic congestions spots? Where do people live? Which are commercial areas of a city (vs residential areas)? Proxies for credit ratings for individuals.

Digital rights: what works in our context?
- How do we ensure an equitable, human rights-enabling, safe Internet for users in the region?
- E.g.: how do users in Myanmar deal with online harassment, privacy and security issues?

Improving lives of marginalized groups
- E.g. independent living for Persons with Disabilities: Myanmar, Nepal, Sri Lanka, India
- Other groups - the poor, women, those at the intersections of various forms of marginalizations
AfterAccess: Nationally representative surveys of ICT access and use by households & individuals aged 15-65 across Global South

- 3 partners conducting the research: LIRNEasia (in Asia), Research ICT Africa (RIA, in Africa), DIRSI (in Latin America)

- Funded by IDRC (Canada), SIDA (Sweden), the Ford Foundation

- Rigorous sampling method, comparable across countries

- Predominantly common questionnaire with local customization
  - Structured, closed-ended responses administered face-to-face using mobile devices
  - User-based (rather than subscription-based) data allowing for disaggregation by urban-rural, gender, SEC, age, etc.

- Sri Lanka fieldwork – Nielsen Lanka Private Limited (selected through a competitive bidding process)
To date 23 countries (covering >30% global population); 38,005 face-to-face interviews

Sample sizes

Notes: Pakistan excludes AJK, FATA, Gilgit-Baltistan (~2% of population)
Asian survey country samples ranging from ~2,000-5,000 per country

5 provinces (excl. AJK, FATA, Gilgit-Baltistan)
100 Enumerator Areas
2,002 households & individuals

19 states
108 districts
250 villages and wards
5,069 households & individuals

25 provinces
100 districts
100 villages
2,008 households & individuals

40 Zilas
92 Upazillas
100 villages & wards
2,000 households & individuals

20 provinces
70 districts
100 villages
2,123 households & individuals

All provinces
100 Grama Niladhari divisions
2,017 households & individuals
Sri Lanka sample representative of 15-65 population
(95% confidence interval; +/-3.3 margin of error)

- Sample designed to be representative of 15-65 population at:
  - National level
  - Urban-rural level
  - Men vs. women
  - SEC (Socio-economic classification, a proxy for income)

- The sample is **not** designed to represent at:
  - Province level
  - District
  - other

2,017 individuals in 100 GN divisions

Sample GPS locations recorded by CAPI device at time of survey
Sample size calculation

- Desired level of accuracy set to a confidence level of 95% and an absolute precision (relative margin of error) of 5%. The population proportion $p$ was set conservatively to 0.5 which yields the largest sample size (Lwanga & Lemeshow, 1991). The minimum sample size per tabulation group determined by (Rea & Parker, 1997):

$$ n = \left( \frac{Z_a \sqrt{p(1-p)}}{C_p} \right)^2 = \left( \frac{1.96 \sqrt{0.5(1-0.5)}}{0.05} \right)^2 = 384 $$

Weighting

- Two weights constructed: for households and individuals, based on inverse selection probabilities → data can be extrapolated to national level.

Household weight: $HH_w = DW \frac{1}{P_{HH} \times P_{EA}}$

Household Selection Probability: $P_{HH} = \frac{n}{HH_{EA}}$

Individual weight: $IND_w = DW \frac{1}{P_{HH} \times P_{EA} \times P_I}$

Default value of 1.5 was used as the design effect for Sri Lanka. Actual sample size was increased beyond minimum requirement to compensate for clustering effects allow for urban/rural disaggregation of data, as well as gender-based disaggregation. Therefore, in Sri Lanka the sample size was increased to 2,000.
Sri Lanka weights (detailed)

Household weight:

\[ HH_W = \frac{1}{DW \cdot P_{GN} \cdot P_{SEG} \cdot P_{HH}} \]

Individual weight:

\[ IND_W = \frac{1}{DW \cdot P_{GN} \cdot P_{SEG} \cdot P_{HH} \cdot P_I} \]

GN Selection Probability:

\[ P_{GN} = \frac{m \cdot HH_{STRATA}}{HH_{SEG}} \]

Segment selection Probability:

\[ P_{SEG} = \frac{e \cdot HH_{STRATA}}{HH_{SEG}} \]

Household Selection Probability:

\[ P_{HH} = \frac{n}{HH_{SEG}} \]

Individual selection Probability:

\[ P_I = \frac{1}{HH_{m15-65}} \]

When \( HH_{GN} \leq 250 \), \( HH_{GN} = HH_{SEG} \). Thus, \( P_{SEG} = 1 \). (i.e., If a village has less than 250 households, it will be treated as an segment)

\( DW \) = design weight compensation for over-sampling of urban PSUs and under-sampling of rural PSUs;

\( HH_{SEG} \) = number of households in selected GN segment based on information of last census or updated listing by field team;

\( HH_{STRATA} \) = number of households in strata (urban, rural);

\( HH_{m15+} \) = number of household members or visitors 15 years or older;

\( m \) = target number of Villages/Wards for each strata, (urban, rural);

\( e \) = target number of segments in a GN;

\( n \) = target number of households in a segment;
Stage 1:

Stratified random sampling of the primary sample units (PSUs) with probability proportionate to size (PPS) sampling.

- **250 Villages and Wards covering**: 19 States, 108 Districts
  Fieldwork time period: October 5 – November 30 (2017)

- **100 Enumerator Areas of the 2017 National census**: 5 Provinces excluding FATA, 28 Divisions
  Fieldwork time period: October 21 – December 26 (2017)

- **100 Villages and Wards**: 40 Zilas, 92 Upazillas
  Fieldwork time period: October 8 – December 1 (2017)

- **100 Villages covering**: 20 Provinces, 70 Districts
  Fieldwork time period: September 23 – October 12 (2017)

- **100 wards covering**: All Provinces, 48 Districts
  Fieldwork time period: April 23 – June 18 (2018)

- **100 GN divisions covering**: All Provinces
**Stage 2:**

Mapping and listing of selected PSUs

- Mapping of randomly selected village with the help of the key informants
- Segmentation villages where the number of households exceeding 250
- List of structures of the entire segment identifying the eligible households

Obtaining PSU information (boundaries, households, etc.) from key informants (Kis)
**Stage 3:**

Random selection of listed households

Random selection of households conducted systematic random sampling using the household lists collected during the listing.

- Random selection of 20-25 households for the main survey

**Stage 4:**

Household interview (with household representative) and individual interview (with randomly selected individual after listing eligible members in household roster)

Interviews conducted on mobile devices

- Listing all the household members in the household roster
- Randomly selecting one member from age 15-65 from the list