3rd World Telecommunication/ICT Indicators Meeting

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Source: Vanessa Gray
ITU

Title: New challenges, new indicators: Measuring ICT knowledge (PowerPoint presentation)
New challenges, new indicators: Measuring ICT knowledge

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Vanessa.Gray@itu.int

Why ICT knowledge indicators?

• Along with infrastructure and income, knowledge is a driver of ICT use and thus critical for e-readiness assessment
• Knowledge indicators help to estimate the potential size for ICT and indicate whether bottlenecks are market or social
Reasons for not having Internet

Source: ITU adapted from IDA (Singapore), C&SD (Hong Kong, China) and KNSO (Korea, Rep.)

Basic literacy is a poor indicator of ICT usage

Internet Penetration and Literacy in South East Asia

Source: ITU
How to measure ICT knowledge?

• ICT literacy would be an ideal indicator but few countries measure this

Four groups of indicators

• School enrolment (3)
  - Primary
  - Secondary
  - Tertiary

• Educational attainment (3)
  - Primary
  - Secondary
  - Tertiary

• Newspaper readership (1)

• Language (2)
  - Diversity
  - Ability to understand other languages
School enrolment

- Close link between school enrolment and Internet use
- Young people have highest rates of Internet penetration

Students account for 28% of all Internet users but for only 15% of the total population

Source: ITU adapted from Census & Statistics Department, China.

Educational attainment

- Just as important as school enrolment
- Enrolment measures potential whereas attainment measures where a country is at now
- Strong link between educational attainment and Internet use

Source: ITU adapted from CNNIC, National Bureau of Statistics.
Newspaper readership

- Conventional measure is daily newspaper circulation
- Lack of information
  - UNESCO data tends to be out of date and incomplete
  - Most national statistical agencies do not collect newspaper data
  - Some advertising/newspaper associations collect newspaper data
- Ideal indicator would be ‘% of population that reads a newspaper’

![Graph showing newspaper readership per 100 inhabitants for Singapore, Malaysia, Thailand, Philippines, Indonesia, Vietnam, Laos, Cambodia. Note: Logarithmic scale. Source: ITU adapted from national statistical agencies, UNESCO, industry associations.]

Language

- Ability to understand other languages
  - People not familiar with an 'Internet' language cannot take advantage of vast amounts of content & applications
- Diversity
  - The more diversity, the less relevant single-language content will be and the harder to achieve economies of scale

![Pie chart showing ratio of languages in web content. English 68.3%, Chinese 3.8%, French 2.4%, Spanish 2.4%, Russian 1.9%, Italian 1.6%, Portuguese 1.4%, Korean 1.3%, Japanese 0.9%, Arabic 0.7%, German 0.5%, Other 5.8%. Source: ITU adapted from MHPT, Japan.]

Application linguistics
Language availability of Microsoft products

<table>
<thead>
<tr>
<th>Hotmail</th>
<th>Messenger</th>
<th>Explorer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazilian, Portuguese, Chinese (Simplified), Chinese (Traditional), English, French, German, Italian, Japanese, Korean and Spanish</td>
<td>Arabic, Chinese (Simplified), Chinese (Traditional), Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese (Brazilian), Portuguese (Standard), Russian, Slovak, Slovenian, Spanish, Swedish and Turkish.</td>
<td>Arabic, Brazilian Portuguese, Czech, Chinese (Simplified), Chinese (Traditional), Danish, Dutch, English, Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish and Turkish.</td>
</tr>
</tbody>
</table>

No Khmer, Indonesian, Laotian, Thai, Vietnamese...

Understanding other languages

- The ability to understand an “Internet” language, especially English, enhances ICT usage
- Ability to understand popular languages also increases amount of content users can access

Source: ITU adapted from NECTEC, Thailand.
Diversity

- The more languages used in a country, the less economy of scale in developing Internet content.
- Less content available for lesser used languages.

The higher the value, the less likely it is to find 2 people that speak the same language.

Source: ITU adapted from Ethnologue.

Who compiles knowledge indicators?

- Most national statistical agencies compile some.
- UNESCO compiles school enrolment and newspaper circulation but data are uneven.
- Ethnologue.com compiles language statistics.
Example from Singapore

<table>
<thead>
<tr>
<th>Schooling</th>
<th>Gross Enrollment Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>88</td>
</tr>
<tr>
<td>Secondary</td>
<td>97</td>
</tr>
<tr>
<td>Tertiary</td>
<td>99</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Educational attainment (Age 15+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>7.5</td>
</tr>
<tr>
<td>Primary</td>
<td>6.2</td>
</tr>
<tr>
<td>Secondary</td>
<td>45.1</td>
</tr>
<tr>
<td>Tertiary</td>
<td>31.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reading</th>
<th>Daily newspaper circulation per 100 population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>38.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spoken (Age 5+):</td>
<td>42.24/7</td>
</tr>
<tr>
<td>Chinese</td>
<td>58.8</td>
</tr>
<tr>
<td>English</td>
<td>23.0</td>
</tr>
<tr>
<td>Malay</td>
<td>14.1</td>
</tr>
<tr>
<td>Tamil</td>
<td>3.2</td>
</tr>
<tr>
<td>Others</td>
<td>0.9</td>
</tr>
<tr>
<td>Diversity Index</td>
<td>0.58</td>
</tr>
</tbody>
</table>

| Literacy in another language: | 0.71 |
| English                     | 70.9 |

Conclusions

- Need to collect data on at least nine knowledge indicators, perhaps through household surveys
- Ideally, these indicators would be tied to Internet user surveys
- Governments should unify and disseminate these indicators along with traditional ICT statistics
- More work on definitions, relation to ICT take-up and international comparisons