Education Issues and Information Needs for Policy & Management

- Social Demand
- Policies & resources
- Access & Participation
- Knowledge & Skills
- Quality Standards
- Efficiency
- Social-Economic Impact

NESIS Indicators Model
## Indicators for Education Sub-sectors

<table>
<thead>
<tr>
<th>Indicator areas</th>
<th>Early childhood</th>
<th>Formal Basic education</th>
<th>NFE Out-of-school youth &amp; adults, literacy, life skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand for education and training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input of resources and policies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of education delivery process</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Access and participation/coverage</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Efficiency</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Output of knowledge and skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact on individual welfare &amp; health</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Impact on gender &amp; social disparities</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Impact on community development</td>
<td></td>
<td></td>
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<tr>
<td>Impact on socio-economic systems</td>
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</tr>
</tbody>
</table>

## Central functions in policy cycle

- **Policy formulation**
- **Monitoring**
- **Evaluation**
- **Decision**
- **Mobilization**
- **Implementation**
- **T-L Impact**
- **Efficiency**
- **Administration**
Policy Analysis Framework

- **Formulation** – defining goals, identifying target groups and setting targets
- **Decision** – “authoritative allocation of values”
- **Mobilization** – resources delivered for system development
- **Implementation** – systems development – structures, functions, regulations, processes, etc.
- **Monitoring** – systems performance benchmark indicators
- **Assessment** – systems outputs, outcomes, impact

Policy Cycle and EFA Goals

<table>
<thead>
<tr>
<th>Policy Cycle/indicators</th>
<th>ECC E</th>
<th>UBE</th>
<th>Skills</th>
<th>Literacy</th>
<th>Gender</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance, policy, agencies coordination</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Resource mobilization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courses, programs, Facilities</td>
<td>Quality</td>
<td>Equity</td>
<td>Impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality &amp; Equity Outcomes</td>
<td>Course</td>
<td>Outputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact Assessment</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Are we moving closer to the goal? Forward? Backward?

EVALUATING EFA STRATEGIES

Guys! Are you sure this is the best way of getting there?
<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Assessment</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>improve implementation/formative</td>
<td>improve policies and strategies/summative</td>
</tr>
<tr>
<td><strong>Aimed at</strong></td>
<td>operations and management</td>
<td>policymaking and leadership</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>account of what has been implemented</td>
<td>evaluation of policies and strategies vs goals &amp; targets</td>
</tr>
<tr>
<td><strong>Information</strong></td>
<td>inputs and process</td>
<td>Learning achievements per objectives, TL process</td>
</tr>
<tr>
<td><strong>Indicators</strong></td>
<td>resource input, efficiency, quality of delivery</td>
<td>Learning results per method-materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>learning achievements, socio-economic changes</td>
</tr>
</tbody>
</table>

**Example Problem: Low enrolment rates in border region**

**Evidence/data based**

**Causal Analysis**
GATHERING INFORMATION
On indicators, policies & plans from
Surveys, research documents, reports

ANALYSIS
Of root causes &
their linkages

Policy Decision
SELECTION
Of areas of cooperation

From Theory to Evidence-based Explanation

Operationalization
Model: concepts
Units, variables,
time, relations

Data collection

Dissection

Theory

Causal inference

Data analysis

Integration

Generalization
abstraction
Operationalization

- Data matrix/box – “data modeling”
  - Units of analysis
  - Variables (attributes & behavior)
  - Time-space
- Measurement, scaling, examples:
  - Learning achievement
  - “Parental love”
  - Child-centered T-L
- Data analysis: statistical models
  - Univariate scalability, centrality and distribution profile
  - Bivariate correlation/covariance, test of hypothesis
  - Multivariate analysis of co-variances,
  - Path analysis of causal models, fitness-test of theory
  - Etc.

Hypothetical Causal Model

dependent, immediate factors, conditioning factors

Z1 → X1 → X5
Z2 → X2 → X5
Enroll in NFE
Causal model

Explain differences in Enrolment

Conditioning factors: policy determined
- Legal requirement Compulsory/noncompulsory primary education
- Budgetary allocation for migrant workers/non-Thai
- Availability of schools, teachers and places
- Absence of clear authoritative directive
- Language of instruction
- Laws on citizenship, registration, work permit, resident permit

Immediate factors
- Birth certification
- Citizenship
- Residence permit
- Work permit
- Legal ID card
- Poverty – household income
- (Fear of deportation)
- Language barrier

The effect of the Urban-Rural settings

Case 2: Irrelevant

Case 3: Concurrent

Case 4: Conditional / Interaction

Case 5: Intervening / common effect
Testing the effect of a third variable
Path Analysis using partial correlation or multiple regression

Case 1: starting point: a bi-variate correlation

Citizenship + Access

Access = a + b (Citizenship) + u
Acesss = β (Citizenship) + μ
R_{ac} ≠ 0

Testing the effect of a third variable
Path Analysis using partial correlation or multiple regression

Case 2: Urban/rural setting has an Irrelevant effect: the level of participation for Thai and non-Thai respectively, and the difference between Thai and non-Thai are the same in the urban or rural environments.

Citizenship = β Urban + μ, where β=0
Access = β_1 Citizenship + β_2 Urban + μ, where β_2=0

Citizenship
0 +
Urban/rural environment
0
Access/Participation
The enrolment rate differs for both groups and zones -- participation of Thai is greater than that of non-Thai, regardless of the environment, but for both groups respectively, participation is greater in the urban than the rural environment.

\[
\text{Citizenship} = \beta \text{Urban} + \mu, \text{ where } \beta = 0
\]

\[
\text{Access} = \beta_1 \text{Citizenship} + \beta_2 \text{Urban} + \mu
\]
Case 4: Conditional/interaction effect:
- The difference between Thai and non-Thai is magnified in the urban than in the rural areas. Among Thai, enrolment is higher in the urban areas; among non-Thai, it is higher in the rural areas; producing opposite effects. More likely the other way round?

\[
\text{Citizenship} = \beta \text{Urban} + \mu, \text{ where } \beta = 0
\]
\[
\text{Access} = \beta_1 \text{Citizenship} + \beta_2 \text{Urban} + \beta_3 \text{UxC} + \mu
\]

Tabular analysis for causal interpretation

<table>
<thead>
<tr>
<th>Case 3</th>
<th>Thai</th>
<th>Non-Thai</th>
<th>%diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>80</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>No ID</td>
<td>40</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>%diff</td>
<td>40</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

Concurrent effect:
difference between citizens and also between ID ownership; therefore, both are relevant
Tabular Analysis

<table>
<thead>
<tr>
<th>Case 4</th>
<th>Thai</th>
<th>Non-Thai</th>
<th>%diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>80</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>No ID</td>
<td>50</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>%diff</td>
<td>30</td>
<td>-10</td>
<td></td>
</tr>
</tbody>
</table>

**Conditional effect:** differences are accentuated by combined effects - big advantage for Thais with legal IDs and some advantage for Thais in rural areas, resulting in opposite effects of ID ownership on respective groups.

Graphical displays for causal interpretation

![Case 4: Conditional/Interaction effect](image)
Case 5: Intervening/common effect:

- The difference is between the urban and rural areas, not between Thai and non-Thai (spurious effect), due either to the intervening or common effects of the environment.

\[ R_{\text{Citizenship} \times \text{Access,Urban}} \neq 0 \]

\[ \text{Access} = \beta_1 \text{Citizenship} + \beta_2 \text{Urban} + \mu, \text{ where } \beta_1 = 0 \]