Defining the Assumptions of the Theory of Change

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Impact Evaluation of Program to Encourage Multilingual Education
Impact Evaluation of Program to Encourage Multilingual Education

• Finding: Zero Impact on Reading Outcomes
  • No Impact on Local Language Reading Outcomes
  • No Impact on English Reading Outcomes
What to do after zero impact? We do not know.

- Should we close down the multilingual education program?
- Should we start teaching English at a later stage?
- Should we Focus on Improving Teacher Attendance?
- Should we start Teaching the Local Language to the Teachers?
- Should we start introducing performance incentives?
Theory of Change: Why an intervention Works or does not work?

“I think you should be more explicit here in stage 2…”
Overview Workshop

• Round of introductions
• What is a theory of change?
• Causal chain analyses
• Integrating assumptions in the theory of change
• Testing the assumptions of the theory of change.
So who are you and what is a theory of change according to you?
Definition Theory of Change

- “Maps out the causal chain among inputs, activities, outputs, outcomes, and impacts as well as the underlying assumptions” (White, 2009)
Example Causal Chain

Voucher Distributed ➔ Students Attend Private School ➔ Students gain more knowledge than they would in public schools ➔ Improvement in learning outcomes
Something else happened: The theory of change did not work

- Public school teachers did not support the program
- Students were living far away from private schools
- Private schools do not receive the same development schemes as public schools
Theory of Change: Assumptions

- Voucher Distributed
  - Students Attend Private School
    - Students gain more knowledge than they would in public schools
      - Improvement in learning outcomes

Vouchers provide sufficient funds for private school attendance

Public school teachers support the program

Students/parents do not prefer public school; e.g. due to distance, discrimination, etc.

Vouchers do not displace other development funds
Theory of Change: Assumptions

Voucher Distributed → Students Attend Private School → Students gain more knowledge than they would in public schools → Improvement in learning outcomes

- Smaller student/teacher ratio
- Better curriculum
- Better teachers
- Teacher attendance
- More training

- Better facilities – toilets, water, fans, desks, chalkboards, etc.
- Higher performing classmates
- More parental involvement
Key Lesson 1: Assumptions are associated with specific stages of the theory of change

- There are assumptions from inputs to outputs
- There are assumptions from outputs to outcomes
- There are assumptions from outcomes to impact
Impact Evaluation: Addressing Counterfactual Questions
Counterfactual comes from control or comparison group

- Randomization
- Quasi-Experimental
  - Propensity Score Matching
  - Regression Discontinuity Design
  - Instrumental Variables
Counterfactual analyses meets factual analyses

- Calculate percentage of students who did and who did not attend private schools after getting the voucher
- Analyse why students did not use the voucher?
- Compare the quality of private schools with the quality of public schools
Factual Analyses allows for addressing different types of questions

• Does the programme target the right beneficiaries?
• What are the economic and socio-cultural barriers towards participation in the program?

• Increases External Validity
It is just a theory before data collection and analysis

“I think I’ve found the Higgs boson!”
Key Lesson 2: Testing the assumptions of the theory of change requires factual analysis

• Impact evaluation requires counterfactual analysis
• Testing the theory of change requires factual analysis
• This combination usually requires a mixed-methods approach
Pension Program Peru: Measuring Outcomes Along the Causal Chain

- Monthly allowance of 46 US Dollar for elderly aged 65 or older
- No individuals with own pension arrangements
- Targets individuals living in poverty
- Rural districts with high levels of poverty
Theory of Change: Pension Programme

Pension Distributed → Income Increases → Expenditures in Community Increase

Expenditures for Children Increase → Health Improves

Health Children Improves → More time for School → Learning Outcomes Improve

Individual Health Expenditures Increase → Spillovers to Rest of Community → Health Improves
Pension Program Peru: Measure Outcomes for Individuals

- Income
- Expenditures
- Health Expenditure
- Health Status
Pension Program Peru: Measure Outcomes for Children

- Expenditures
- Education expenditures
- Child-specific Health Expenditures
- Height and weight
- Learning Outcomes
Programme affects non-beneficiaries as well

- Survey Non-beneficiaries in same village
- Social Networks
Key Lesson 3: Analyzing the theory of change requires data analysis along the causal chain

- Theory-based impact evaluation assesses inputs, outputs, outcomes, and impacts.
Theory of Change: Women’s Self-Help Groups

Introduction
Women’s Self-Help Group

Women become members of self-help group

Women members start saving

Saving serves as collateral to get access to credit

Women members receive training on women’s rights

Women receive micro-credit
In-Depth Interviews:

Non-SHG Member “Husbands are equal to God. So they should be in control. It is a Hindu tradition. Now people think that women should also be equal to God. If it was up to me I would keep the traditions.”

SHG Member: “They yell at me and say: ‘why are you going outside the house? Why are you going to meetings? You should stay in.”
Women’s Self-Help Groups: Unintended Consequences

Training on women’s rights → Women’s beliefs and attitudes change → Women’s autonomy improves → Women’s social empowerment

- No backlash from the community
- No problems with internalized psychological beliefs about social norms
Women’s Self-Help Groups: Unintended Consequences

- **Microcredit**
  - Credit is not used for paying back moneylenders

- **Women invest in businesses**
  - Interest is not too high

- **Businesses result in profit**
  - Business is successful

- **Income Increases**
  - Profits are not claimed by kinship members
Funnel of Attrition Community-Based Intervention

- **Target Population**: 100 PEOPLE
- **Know about the intervention**: 75 PEOPLE
- **Take part**: 45 PEOPLE
- **Acquire knowledge**: 35 PEOPLE
- **Change attitudes**: 25 PEOPLE
- **Change behaviour**: 20 PEOPLE
- **Outputs realized**: 15 PEOPLE
- **Outcomes achieved**: 10 PEOPLE

- **Intervention well promoted**
- **Intended beneficiaries want to and are able to take part**
- **Effective communication**
- **Cultural barriers are not insurmountable**
- **Incentives, and perception of them, are sufficiently altered**
- **All necessary inputs are present**

**The theory of change is right and other necessary complementary inputs are present**

Funnel of Attrition
Key Lesson 4: Testing the assumptions of the theory of change allows for the discovery of unintended consequences

- The analysis of assumptions can lead in the discovery of potential unintended consequences
So why are assumptions important for policy makers and program managers?

CALVIN AND HOBBES

THE MORE YOU KNOW, THE HARDER IT IS TO TAKE DECISIVE ACTION

ONCE YOU BECOME INFORMED, YOU START SEEING COMPLEXITIES AND SHADIES OF GRAY.

YOU REALIZE THAT NOTHING IS AS CLEAR AND SIMPLE AS IT FIRST APPEARS. ULTIMATELY, KNOWLEDGE IS PARALYZING.

BEING A MAN OF ACTION I CAN'T AFFORD TO TAKE THAT RISK.

YOU'RE IGNORANT BUT AT LEAST YOU ACT ON IT.
To scale a program or not to scale a program

*But that is often not the Question.*
How to scale a program?

- How can we increase participation in the program?
- In which contexts should we replicate the program?
- Is the program only effective in a package?
How can we increase participation in the Open High School program?

Introduce
Once a Week
Secondary Schooling

Children go to school once a week

Children study independently in their own time

Students gain more knowledge than they would without secondary schooling once a week

Improvement in learning outcomes

Modules for independent learning are affordable

Sufficient information about Open High School Program

Students have enough time to learn independently
Are the assumptions fulfilled?

- Qualitative Research
  - Focus-Groups and In-Depth Interviews
    - Lack of Information
    - Printing the Modules is Very Expensive
Conduct an impact evaluation when the program is well implemented but there is uncertainty about the impact on intermediate and final outcomes.
Process Evaluation and Randomized Controlled Trial

- 25% receives information about the programme
- 25% receives information + free modules
- 50% remains in the status quo
In which context do self-help groups have the strongest positive effects?

- Negative effects of self-help groups on happiness in villages with relatively conservative gender norms
- Small but positive effects of self-help groups on happiness in villages with relatively liberal gender norms
Self-Help Groups: Effect on Happiness

Marginal Effect of Treatment on Subjective Well-Being As Social Norm Changes

Dependent Variable: Subjective Well-Being

Marginal Effect of Treatment

95% Confidence Interval
Is the Voucher Program Only Effective when Combined with Information about the Quality of Schooling

- Voucher Distributed
- Students Attend Private School
- Students gain more knowledge than they would in public schools
- Improvement in learning outcomes

Private schools are better:
- Smaller student/teacher ratio
- Better curriculum
- Better teachers
- More parental involvement
- Higher performing classmates
- Better facilities – toilets, water, fans, desks, chalkboards, etc.
- More training
- Teacher attendance
Voucher Program can Result in Wrong Choices: Combine with Info about Schools

- Negative effects of attending English medium school on local language learning outcomes in Karnataka after voucher distribution (Muralidharan & Sundararaman, 2013)
- Positive effects of attending Telugu medium school on local language learning outcomes in Karnataka after voucher distribution (Muralidharan & Sundararaman, 2013)
Multilingual Education: Theory of Change

Teacher Training
Multilingual Education

Teacher gain knowledge in
Multilingual Education

Majority of Teaching in Local Language in Grade 1-3

Students Improve Reading Skills in Local Language

Students learn basic oral, decoding and reading skills that are useful for every language

Students are able to learn English/French
Key Lesson 5: Testing the assumptions of the theory of change is particularly important to assess how to scale a program.

- How can we increase participation in the program?
- In which contexts should we replicate the program?
- Is the program only effective in a package?
Exercise: Define Assumptions in Theory of Change

- Three Groups
  - Multilingual Education
  - Pension
  - Self-Help Groups
Group 1: Multilingual Education

- Four Groups
  - Multilingual Education
  - Pension
  - Self-Help Groups
  - Open High-School Program
Group 1: Multilingual Education

Teacher Training
Multilingual Education

Teacher gain knowledge in
Multilingual Education

Majority of
Teaching in
Local Language in
Grade 1-3

Students
Improve Reading
Skills in Local Language

Students learn basic
oral, decoding and
reading skills that are
useful for every
language

Students are able to learn
English/French
Group 2: Pension Program

- Pension Distributed
  - Income Increases
    - Expenditures for Children Increase
      - Expenditures in Community Increase
        - Spillovers to Rest of Community
          - Individual Health Expenditures Increase
            - Health Improves
              - Health Children Improves
                - More time for School
                  - Learning Outcomes Improve
Introduction
Women’s Self-Help Group

Women become members of self-help group

Women members start saving

Saving serves as collateral to get access to credit

Women receive micro-credit

Women members receive training on women’s rights
Group 4: Open High School program?

- Introduce Once a Week Secondary Schooling
- Children go to school once a week
- Children study independently in their own time
- Students gain more knowledge than they would without secondary schooling once a week
- Improvement in learning outcomes
Key Lessons

- Assumptions are associated with specific stages of the theory of change
- Testing the assumptions of the theory of change requires factual analysis
- Analyzing the theory of change requires data analysis along the causal chain
- Testing the assumptions of the theory of change allows for the discovery of unintended consequences
- Testing the assumptions of the theory of change is particularly important to assess how to scale a program
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