Dosage and feed-forward information loops: Maximizing the effectiveness of cascade teacher education in Uzbekistan

Uzbekistan Education for Excellence Program
Overview

- Project overview
- TPD framework
- TPD Approach
- TPD findings
- Student outcomes
Quick overview of the project?

- Uzbekistan Education for Excellence Program of USAID
- December 9, 2019, to March 31, 2024
- RTI, Florida State University, Mississippi State University
- Counterparty: Ministry of Preschool and School Education
- Overarching results:
  • 1. Improved Uzbek Language Arts (ULA) and Mathematics outcomes in grades 1–4;
  • 2. Enhanced information and communication technologies (ICT) instruction for grades 1–112; and
  • 3. Improved English as a foreign language (EFL) instruction in grades 1–11.
Guiding framework: Modified Kirkpatrick Model of Evaluating Training

- Satisfaction
- Knowledge
- Self-efficacy (modification)
- System support (modification)
- Application
- Impact (learning outcomes yay!)
Training and Practice

1. Readiness
   - Supportive leadership
   - Messaging
   - Infrastructure, resources, and logistics

2. Practical Learning
   - *Modeling, small group practice, discussion*
   - School-based
   - Monthly, 2-4-hour sessions

3. Quality Assurance
   - Monthly, quarterly
   - Trainers, teachers
   - Peer coaching
Cascade through Continuity and Regular Dosage through Methodological Days

1-TPD DAY
Methodists ➔ Master Trainer

2-TPD DAY
Master Trainer ➔ MUH

3-TPD DAY
MUH ➔ Teacher

4-TPD DAY
Q/A

1 month x 6
Evidence through a continuous feed-forward loop: ULA/Mathematics

- Training Quality Assurance
  - Satisfaction survey
  - Post-test
  - Self-confidence
  - Monthly trainer observations
- Action Research
  - Was the training effective?
  - Did teachers apply 21st century skills?
Resources

- Facilitator guides
- Slides w/ scripts
- E-learning courses

https://ebilim.uz/
Participant Satisfaction

Percentage of Tier 1 MTs
- August 2022: 58% Agree, 38% Strongly agree, 40% Neither agree nor disagree
- November 2022: 58% Agree, 38% Strongly agree, 40% Neither agree nor disagree
- March 2023: 67% Agree, 31% Strongly agree, 0% Neither agree nor disagree

Percentage of Tier 2 Trainers
- August 2022: 20% Agree, 18% Strongly agree, 79% Neither agree nor disagree
- November 2022: 18% Agree, 16% Strongly agree, 79% Neither agree nor disagree
- March 2023: 16% Agree, 15% Strongly agree, 81% Neither agree nor disagree

Percentage of Tier 3 Teachers
- August 2022: 15% Agree, 11% Strongly agree, 82% Neither agree nor disagree
- November 2022: 11% Agree, 9% Strongly agree, 86% Neither agree nor disagree
- March 2023: 9% Agree, 9% Strongly agree, 84% Neither agree nor disagree
Self-efficacy, Admin support, and Post test

August 2023

- Tier 1
- Tier 2
- Tier 3

March 2023

- Tier 1
- Tier 2
- Tier 3

Attendance

Self-efficacy score

Post-test score

High satisfaction
Observed desired trainer behaviors (math)

Desired trainer behaviors by mathematics lesson component

- Model lesson with independent work & discussion
- Conduct discussion of wrong answers in problem solving
- Walk around to help small group activity

<table>
<thead>
<tr>
<th></th>
<th>October 2022</th>
<th>November 2022</th>
<th>February 2023</th>
<th>April 2023</th>
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</thead>
<tbody>
<tr>
<td>Quality of training score</td>
<td>23%</td>
<td>12%</td>
<td>18%</td>
<td>26%</td>
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<tr>
<td>Model lesson with independent work &amp; discussion</td>
<td>20%</td>
<td>12%</td>
<td>26%</td>
<td>21%</td>
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<tr>
<td>Conduct discussion of wrong answers in problem solving</td>
<td>63%</td>
<td>36%</td>
<td>74%</td>
<td>74%</td>
</tr>
<tr>
<td>Walk around to help small group activity</td>
<td>20%</td>
<td>12%</td>
<td>26%</td>
<td>27%</td>
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Application: Teacher Observable Behaviors

- Teacher observations at 2 timepoints (November 2022 & May 2023)
- Observed Grade 2 and Grade 4 teachers
- Created scales to understand uptake of materials and methodological approaches
Application: Proficiency in Reading and Listening Comprehension Teaching Practices

![Graph showing percentage of teachers observed in different phases with proficiency levels: Not Yet Started, Novice, Emerging, Proficient.]

- Phase 1 2022:
  - Not Yet Started: 36%
  - Novice: 4%
  - Emerging: 23%
  - Proficient: 13%

- Phase 2 2023:
  - Not Yet Started: 64%
  - Novice: 23%
  - Emerging: 13%
  - Proficient: 0%
Application: Proficiency in Desired Mathematics Teaching Practices

Phase 1 2022
- Not Yet Started: 9%
- Novice: 32%
- Emerging: 42%
- Proficient: 45%

Phase 2 2023
- Not Yet Started: 4%
- Novice: 25%
- Emerging: 26%
- Proficient: 45%
Differences in ULA Learning Outcomes Based on Teacher Participation in Training: Grade 2

Average increase from baseline to endline in reading fluency (cwpm)

- Attended 3 or fewer trainings: 0.2 cwpm
- Attended 6 or more trainings: 4.5 cwpm
Differences in ULA Learning Outcomes Based on Teacher Participation in Training: Grade 4

- Average increase from baseline to endline in reading fluency (cwpm):
  - Attended 3 or fewer trainings: 11.5
  - Attended 6 or more: 15.5

- Percentage point change in students meeting minimum proficiency:
  - Attended 3 or fewer trainings: 5.4
  - Attended 6 or more: 13.8
## Desired teaching behaviors and student outcomes

<table>
<thead>
<tr>
<th>Relative improvement</th>
<th>Desired teaching practice</th>
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<tbody>
<tr>
<td>+ 10% points</td>
<td>Math: Explaining how to solve other related problems</td>
</tr>
<tr>
<td>+ 15 cwpm</td>
<td>ULA: Summarizing student answers</td>
</tr>
<tr>
<td>+ 11 cwpm</td>
<td>ULA: Asking meaning of new vocabulary</td>
</tr>
<tr>
<td>+ 9 cwpm</td>
<td>ULA: Discussion in pairs and groups</td>
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</table>
Teaching practices in top performing schools

• Teachers in top performing (over 75% of students meet benchmark) schools:
  • More frequently asked students to work in small groups or pairs.
  • More frequently engaged students who are not participating.
  • More frequently provided extra task to students who had completed the assignment earlier during independent work.
How did we achieve these results?

- Short, digestible trainings on a regular basis
- A monitoring feedback loop to target training based on evidence
- Teacher reflections incorporated into training
Thank you!
How do we think we achieved these results even with a cascade model?

• The effective features of the TPD approach were the modelling, demonstrations, and practice of student-center methodologies embedded in the new TGs; complemented by classroom observations and discussions with trainers.

• Critical to the approach's effectiveness was ensuring teachers could participate in consistently high-quality training experiences, at scale, even when using a cascade training approach. The Program achieved this by incorporating three critical strategies:

  - Short, digestible trainings on a regular basis
  - A monitoring feedback loop to target training based on evidence
  - Teacher reflections incorporated into training