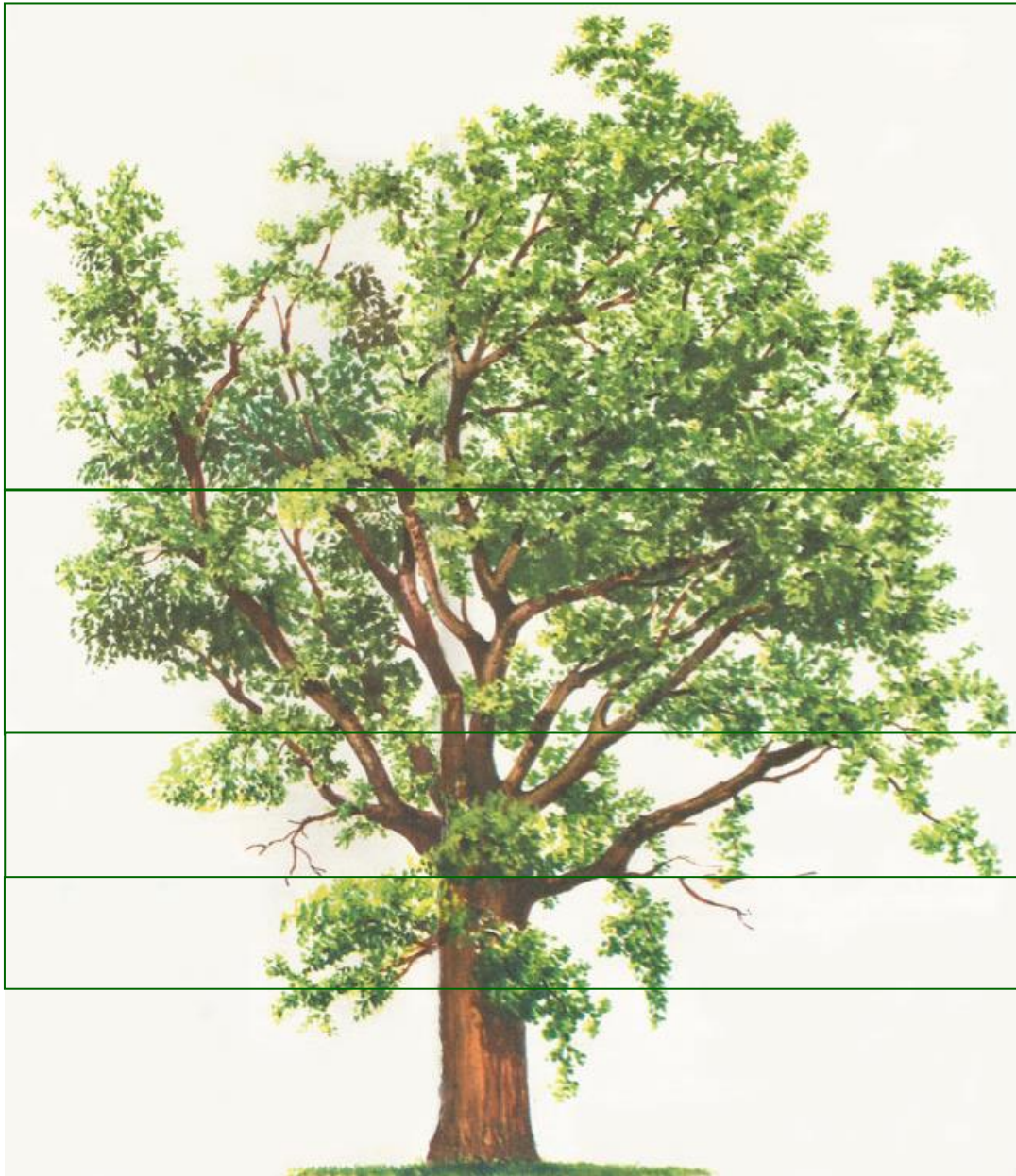**Students,**
teachers,
teachers of teachers,
teachers of teachers of teachers…:
Reflections on the "learning-teaching pyramid"

Abraham Arcavi & Ronnie Karsenty

Students

Teachers

Teachers of teachers

**Teachers of teachers
of teachers**

Outline of our talk:

- Background
- Our starting point
- The facilitator course
- What have we learned so far? Preliminary findings

Background

The VIDEO-LM project (ADASHA)

Over-arching goal:

Improving mathematics teaching at the secondary level, through enhancing reflection of mathematics teachers on their practice.

- A collection of videotaped lessons was created http://adasha.weizmann.ac.il (more than 1000 users)
- The lessons are used as "vicarious experiences" for other teachers, in peer discussions facilitated around the six-lens framework.
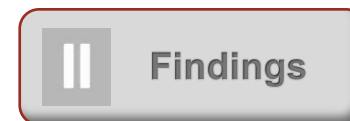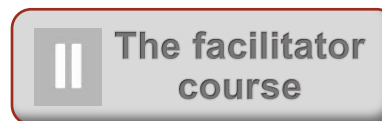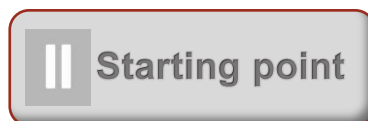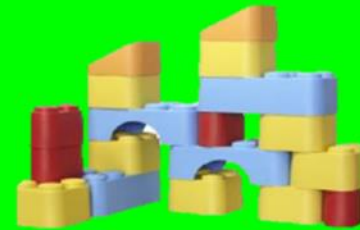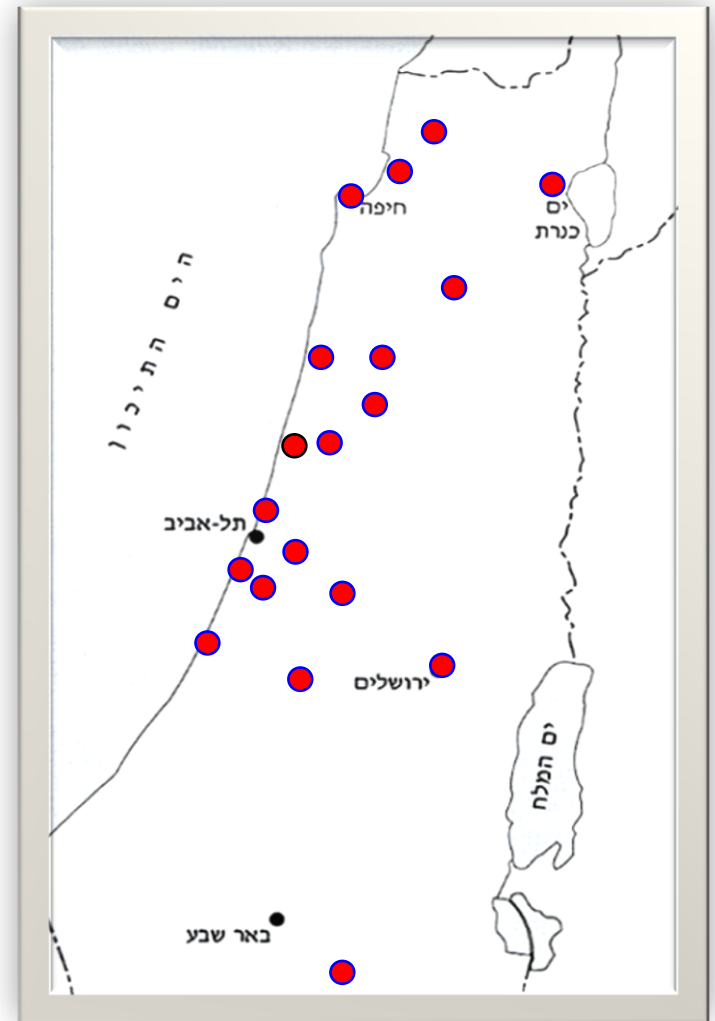
The six-lens framework

Implementation:

- Since 2014, demand for VIDEO-LM courses is rapidly growing.
- so far, 36 courses were held for teachers all over Israel (including ultra-orthodox teachers, and teachers from the Arab and Druze sectors)

Scaling-up VIDEO-LM necessitated the training of new facilitators

VIDEO-LM courses map 2014-16

Background   Starting point   The facilitator course   Findings

Our starting point

Lacking a teacher for ourselves, which sources and resources can we draw upon?
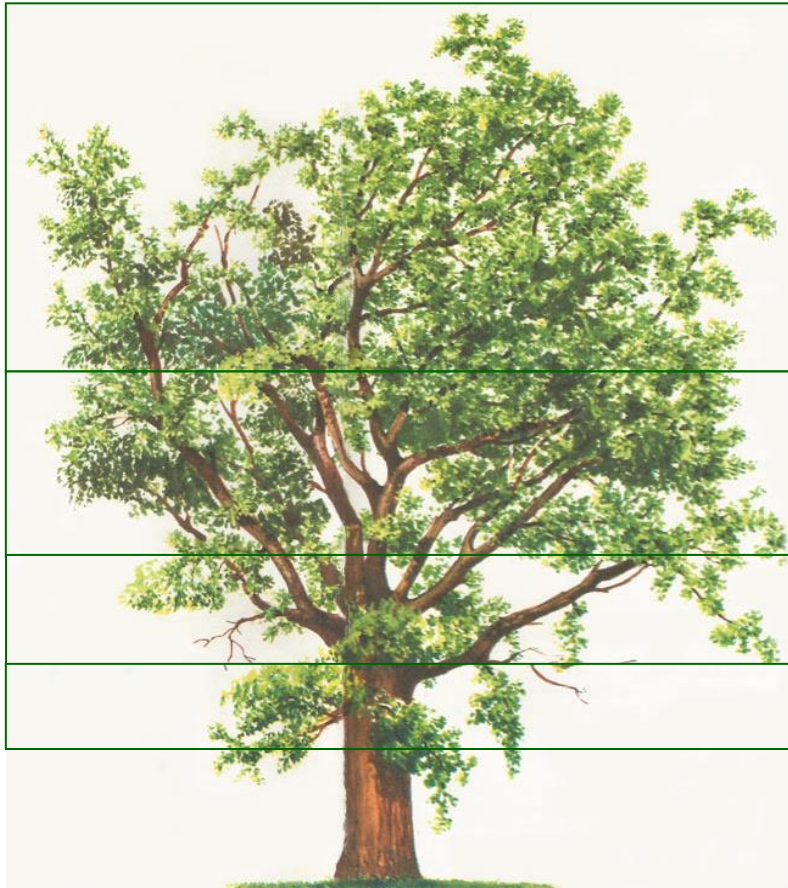
⤵ Experience
⤵ Partnerships

Students

Teachers

Teachers of teachers

Teachers of teachers of teachers

Our starting point

Lacking a teacher for ourselves, which sources and resources can we draw upon?

↳ Experience

↳ Partnerships

↳ Academia

↳ Reflection

Elliott et al. 2009; Coles, 2013; Kuzle & Biehler, 2015; Borko et al, 2014, 2015; Schoenfeld; ETE conferences, CERME conferences, and more

The facilitators course:
Design, implementation and evaluative research

The facilitators course:

Design

Topics included in the program

Design principles
- 1.
- 2.
- 3.
- 4. Case-based learning
  - context
  - Authentic cases
  - A set of tools

Activities

Implementation
- Duration
- Participants
- Prerequisite

Evaluative research

Topics included in the program:

- The roles of a VIDEO-LM facilitator

- Challenges involved in being a facilitator in general, and particularly in VIDEO-LM

- Different models of working with video within sessions

- Working with various teacher audiences

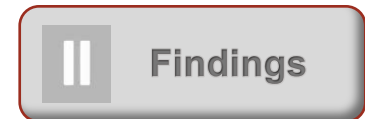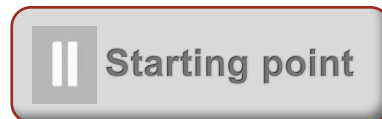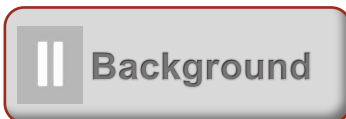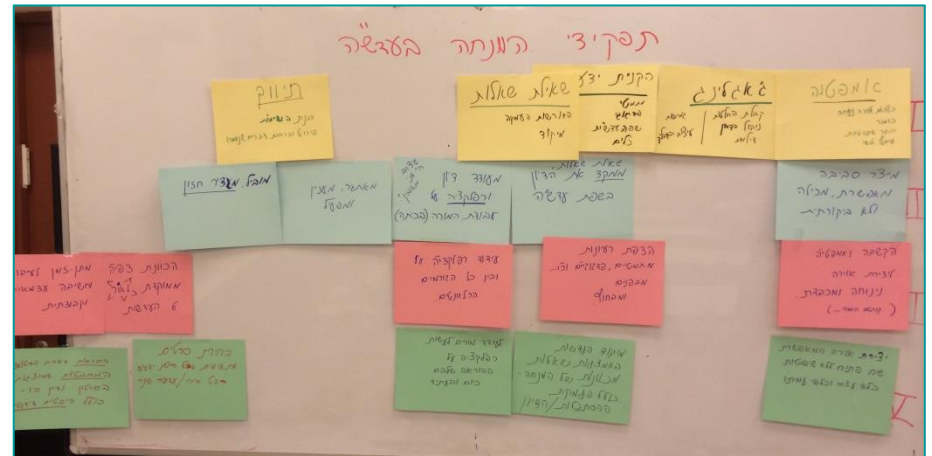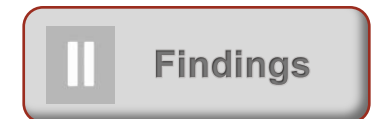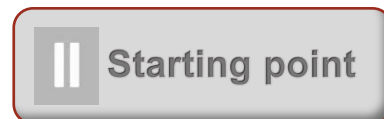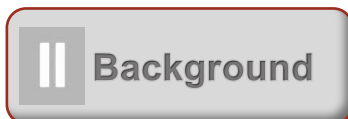- Typical dilemmas and possible ways to resolve them

| ⏸ Background | ⏸ Starting point | ▶ The facilitator course | ⏸ Findings |

Design Principles

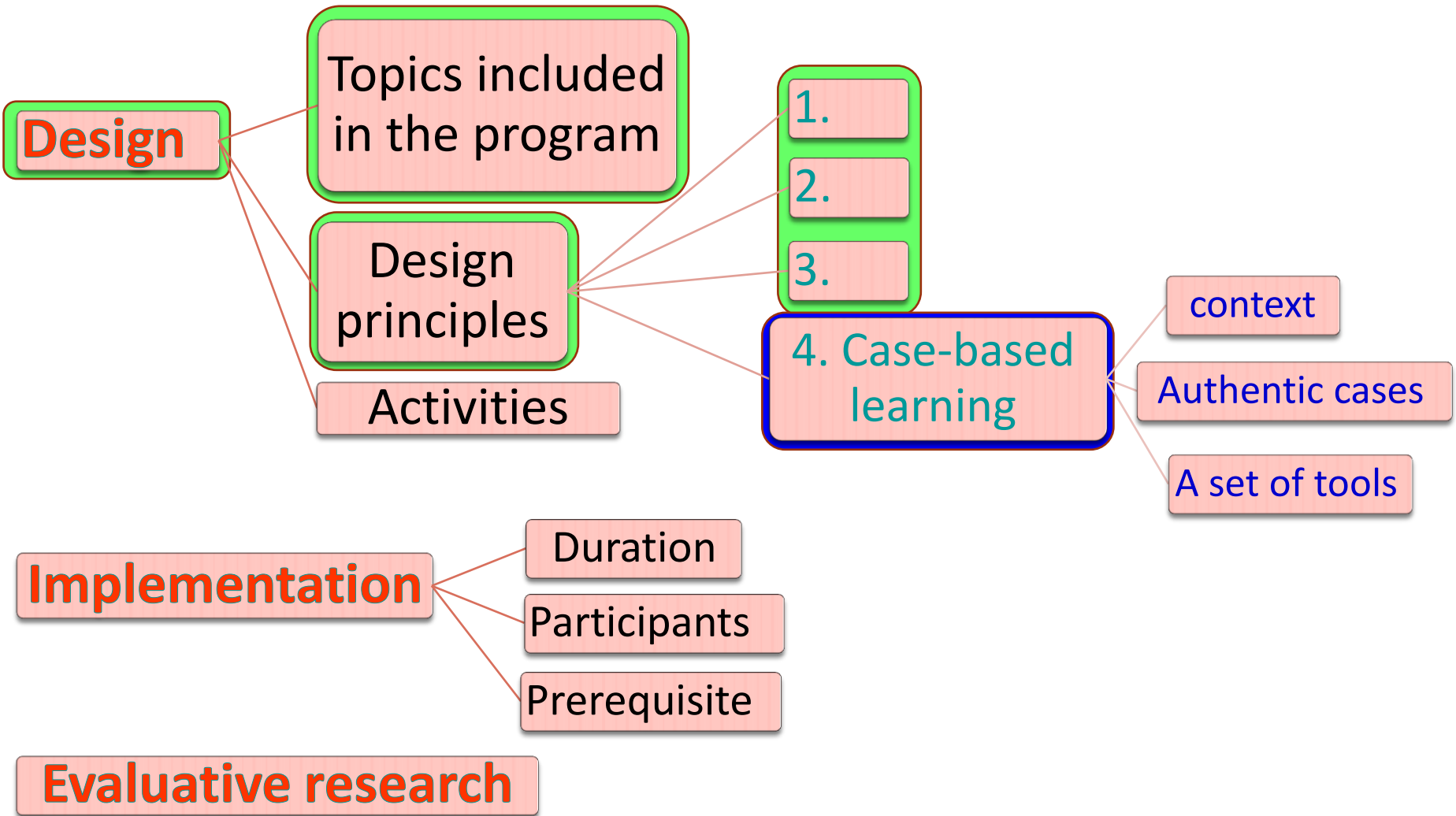**(I)** **Relevance:** course activities are directly linked to realistic issues that VIDEO-LM facilitators deal with

(II) **Maintaining commitment to original goals:** The VIDEO-LM agenda and norms are present at all sessions

(III) **Modeling:** Our conduct as leaders of the course is aligned with what we expect participants to do as course leaders in the future

(IV) **Case-based learning**

The facilitators course:

Design

Topics included in the program

Design principles

Activities

1.

2.

3.

4. Case-based learning

context

Authentic cases

A set of tools

Implementation

Duration

Participants

Prerequisite

Evaluative research

⏸ Background   ⏸ Starting point   ▶ The facilitator course   ⏸ Findings

Design Principles

Case-based learning

At the *Learning-Off-Job* stage, "pre-service" facilitators can advance their knowledge by integrating their own ideas with the experiences of "in-service" facilitators.

It is our responsibility to:

➢ supply them with **authentic cases** to examine

➢ Embed cases in a shared and well-grounded **context**

➢ assist them to develop **a set of tools** to analyze these cases

Example:

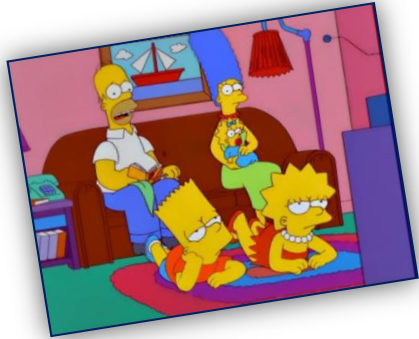How do you suggest to conduct a PD session around this video?

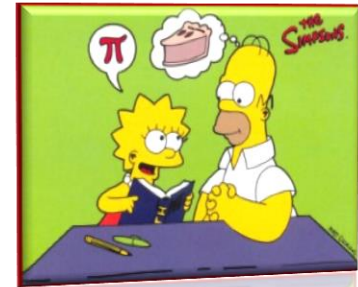⏸ Background   ⏸ Starting point   ▶ The facilitator course   ⏸ Findings

Four essential components of a VIDEO-LM session

1. Presence of the video

2. Presence of the mathematics

3. Presence of the lenses (all or some)

4. Engaging and motivating activities for teachers

Consider the following guidelines:

Our goal in this session is…

The parts of the lesson that are most important to discuss are…

because….

The lenses that are prominent for discussing this lesson are…

A difficulty that we can expect to arise during the session is…

One way to handle this difficulty is…

One activity we can suggest to do with teachers around this video is…

| ‖ Background | ‖ Starting point | ▶ The facilitator course | ‖ Findings |
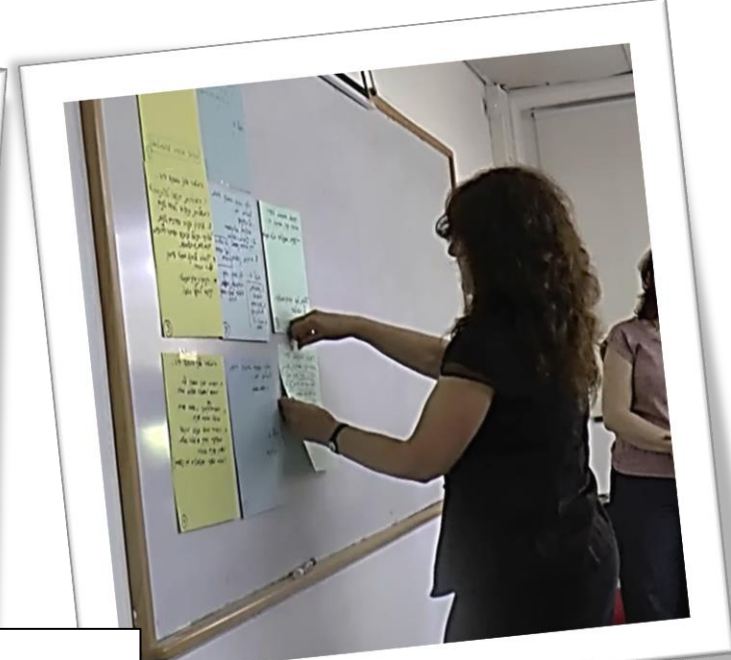
context
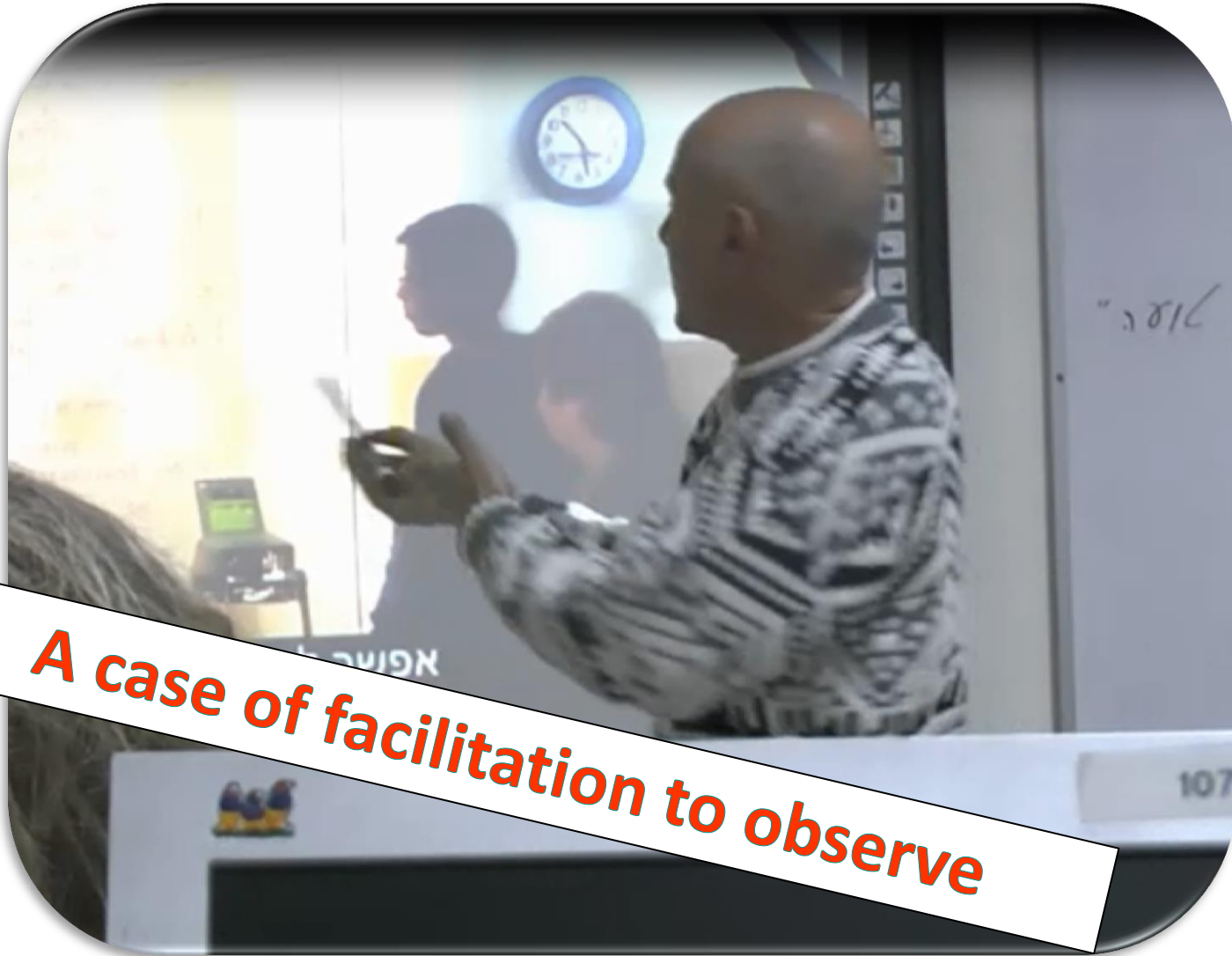
A case of facilitation to observe

| ⏸ Background | ⏸ Starting point | ▶ The facilitator course | ⏸ Findings |

Tools for peer-analysis of facilitation cases: Meta-lenses

Using VIDEO-LM ideas and norms

Goals set for the PD session

Activities for PD participants

Facilitator's dilemmas & decision making

Beliefs about math teaching, how teachers learn and the facilitator's role

Interactions with teachers

Tools for practicing preparation of PD sessions:

- Careful, attentive, non-evaluative and non-patronizing **listening** to other teachers

- Subverting "taken for granted" assumptions

- **Assuming a view opposed to one's own** and making efforts to advance it

- Giving the **mathematics** a central place, making sure the lesson's mathematical ideas are as clear as possible to us as facilitators, before we enter a PD session

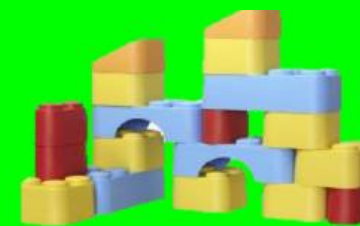- Viewing and **reviewing the video** to discern details of talk and actions that may go unnoticed in first observation

⏸ Background   ⏸ Starting point   ▶ The facilitator course   ⏸ Findings

The facilitators course:

Design

Topics included in the program

Design principles

1.

2.

3.

4. Case-based learning

Activities

context

Authentic cases

A set of tools

Implementation

Duration

Participants

Prerequisite

Evaluative research

Activities:

- Whole-group and small-group discussions

- "Live Labs" of facilitating VIDEO-LM sessions

- Analyses of authentic facilitation cases filmed in previous VIDEO-LM courses

- Short simulations

Example

Can I say something?

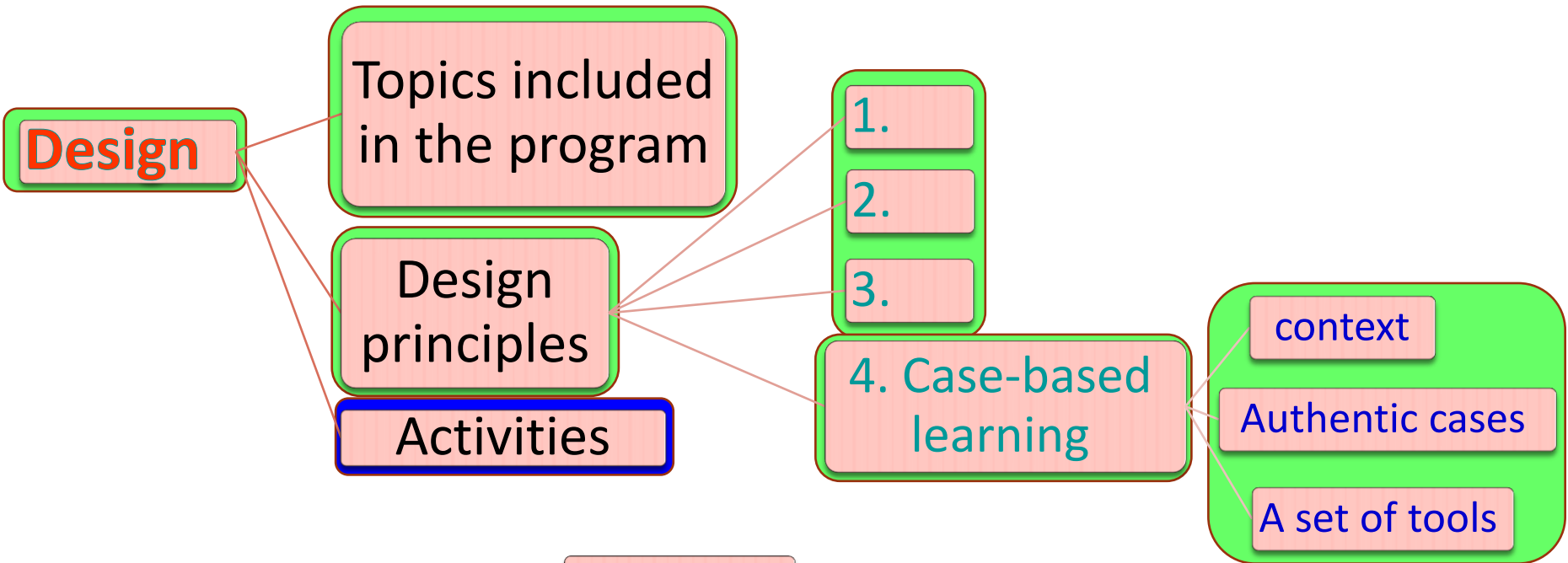| ⏸ Background | ⏸ Starting point | ▶ The facilitator course | ⏸ Findings |

The facilitators course:

Design

- Topics included in the program
- Design principles
  - 1.
  - 2.
  - 3.
  - 4. Case-based learning
    - context
    - Authentic cases
    - A set of tools
- Activities
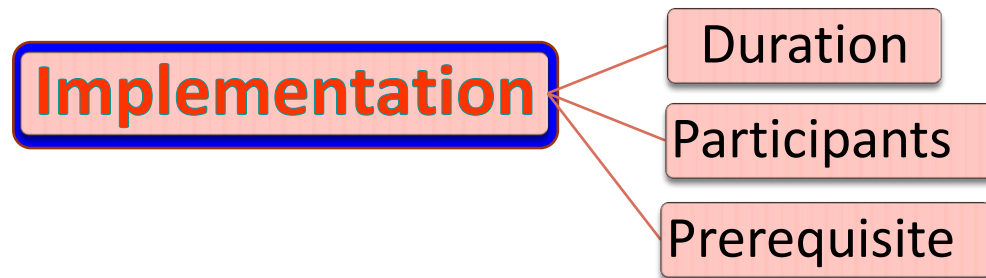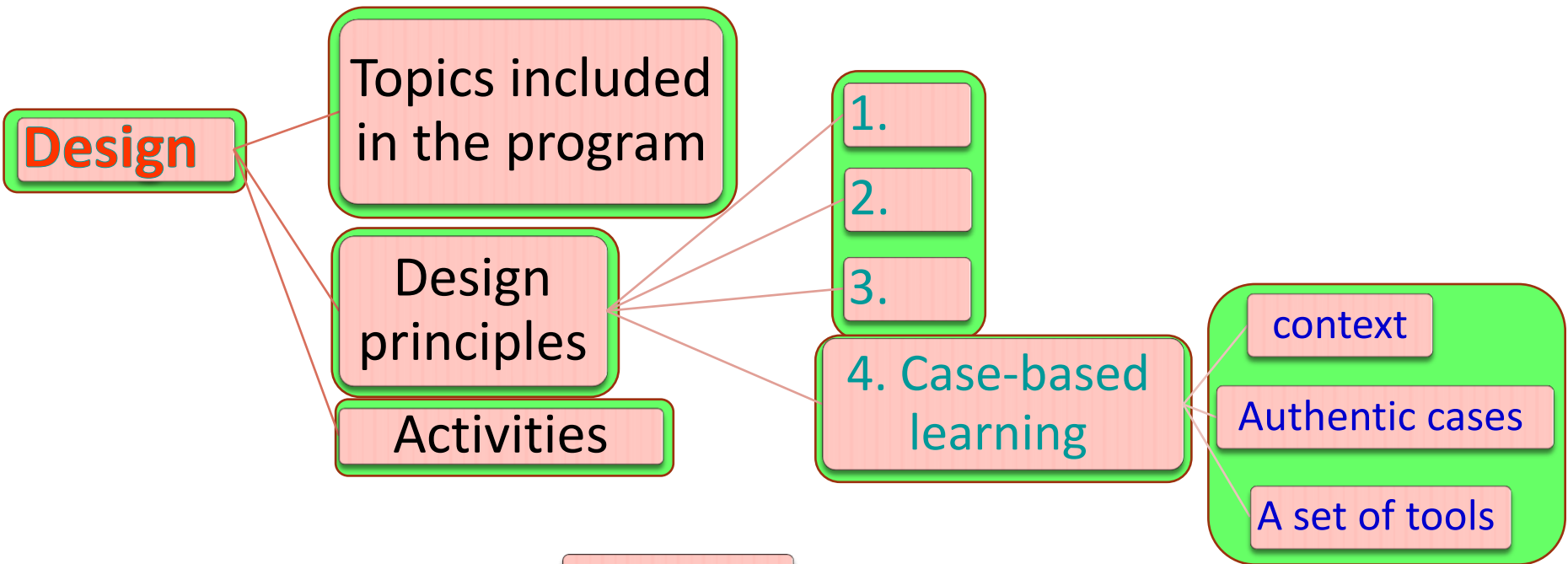
Implementation

- Duration
- Participants
- Prerequisite

Evaluative research

Course Implementation:

- **Duration**: 30 hours (7 monthly meetings of 4-5 hours each)
- **Participants**: 28 in Cohort #1 (2014-15)

  19 in Cohort #2 (2015-16)

  Of the 47 participants, 45 are/were secondary school mathematics teachers.

  Other roles:

  - ✹ 3 school principals,
  - ✹ 13 mathematics counselors of the Ministry of Education,
  - ✹ 9 teacher educators in colleges.

- **Strict Prerequisite:** Graduates of ADASHA basic course
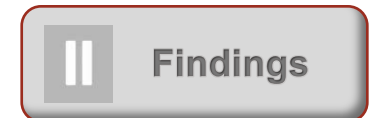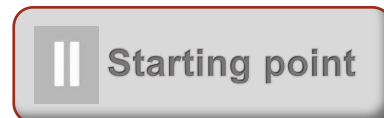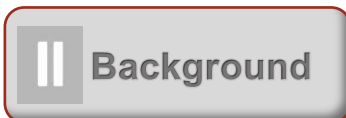
Evaluative research

Data collection means:

- Video-documentation of all sessions
- Questionnaires administered at the end of course
- Interviews with a sample of participants.

Many thanks to Yael Nurick!

What have we found and learned so far?

- **The depth and complexity of processes of reflection development**

"The 'digging deep', I now understand how meaningful it is, which I didn't understand before. […] After analyzing [a certain case] I understood how important this is, how she asks again, gets deeper, strives for understanding, that it's not for *her* better understanding, it's for the person who speaks, and for the group. This is actually the target"
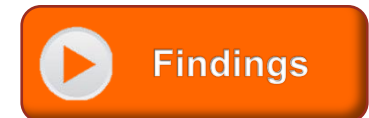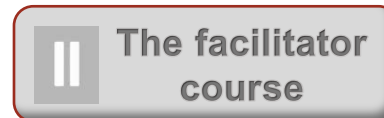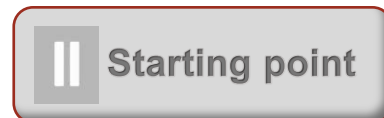
- **The form that the internalization of language and tools may take**

➢ "I've sharpened the questions that should be emphasized all the time: Why did she [the videotaped teacher] do it? *What's behind this? What is the gain? What is the loss? What alternatives were there?* I feel I have these tools, that are these recurring questions"

➢ "This discussion elicited different opinions, some of them were not acceptable from my perspective. But it was good because *you could openly say what you accept and what not* […] eventually a very richening discussion developed, partly because people acknowledged other people's opinions"
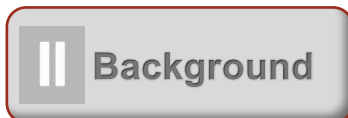
- **Internalization of language and tools**

➢ "Brining out dilemmas [...] it was difficult for me at first. It came unnatural for me to *prompt conflicts* and try to elicit them and say, like Ronnie and Abraham say "wait a minute, he thinks the opposite, so *try to resolve it*, how can this be settled"? so I started doing this [...], and I want to do it more"

➢ "This reflective inspection of facilitation, through lenses of facilitation, the meta-lenses, this helped me a lot. [...] Suddenly *I looked at what I'm doing through them*, I said 'what is really my goal?' It sharpened things [...] yes I had some goals, some approximate goals [...] but *I never thought about the vision of facilitation*"
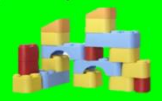
| Using VIDEO-LM ideas and norms	Goals set for the PD session	Activities for PD participants
Facilitator's dilemmas & decision making	Beliefs about math teaching, how teachers learn and the facilitator's role	Interactions with teachers

- **Modeling can be taken by participants to various places – each decision you make is noticed**

➢ "It's about arriving very ready, all prepared and set, yet it's to take out of the audience... a lot of knowledge, and then to organize it... like, all meetings were workshops [...] but here, every time there was a different model"

➢ "The different meetings exemplified for me how to manage a group, vary sessions, create curiosity and surprise, organize and think towards each session [...] organizing the seating arrangements, going deeper and deeper after answers"
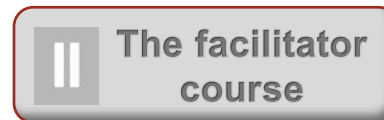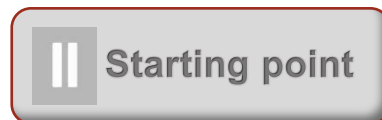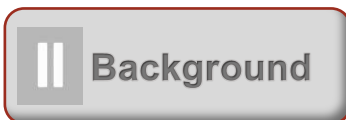
- **Learning in a certain "tree level" percolates to upper levels**

➢ "The lesson on polynomial functions […] took me to a totally different place. As a result I developed a lesson with a similar idea, and discussed it in a teachers course, and in a staff meeting, and then I taught it in two classrooms […] It changed my thinking"

➢ "A major contribution for me […] is in the way I now manage discussions with my students"
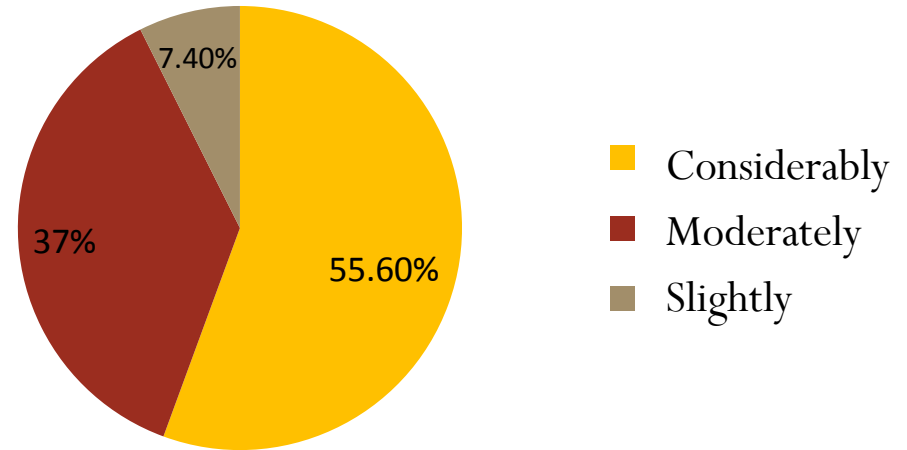
What about readiness to become facilitators?

Questionnaire Item #C1:

To what extent do you feel ready to work as a VIDEO-LM facilitator in the coming school year?

Not at all / Slightly / Moderately / Considerably

Legend:
- Considerably
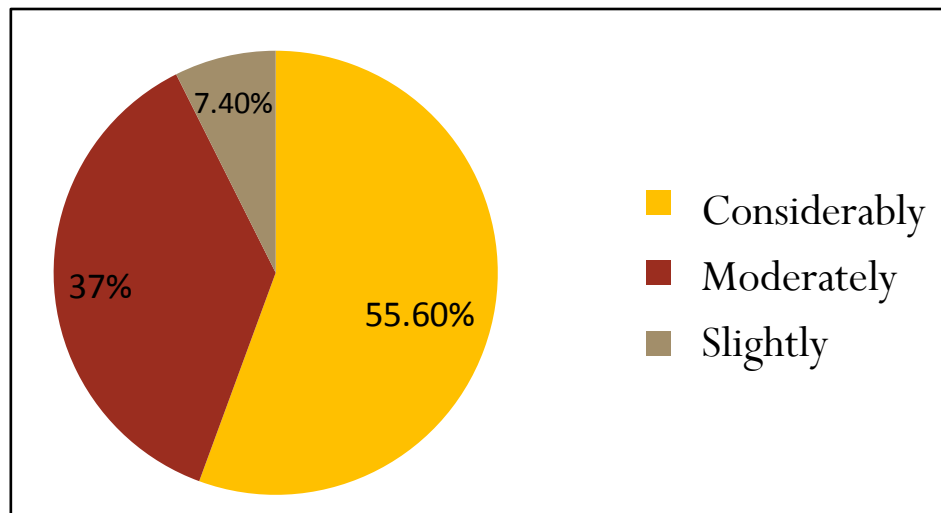- Moderately
- Slightly

Pie chart values: 7.40%, 37%, 55.60%

Concerns

- What are possible reasons for this piece of data?
- What can we do to better prepare future facilitators?
- To what degree is it possible to raise "readiness rates", and what does it mean?

7.40%

37%

55.60%

- Considerably
- Moderately
- Slightly

Forming a support system – The "Learning-On-Job" stage

When?

Where? By whom?

How often?

Use video? How?

Individually? Group work?
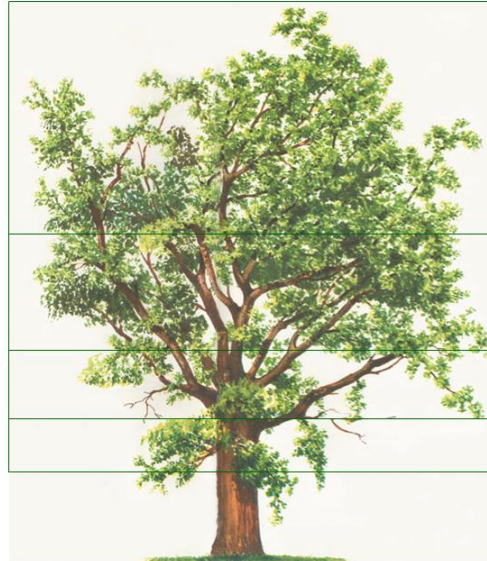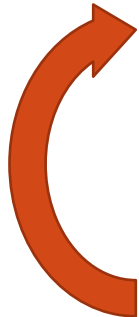
For how long?

⏸ Background   ⏸ Starting point   ⏸ The facilitator course   ▶ Findings

General important open issues:

1. Generalizability?

2. **?**

Students

Teachers

Teachers of teachers

Teachers of teachers of teachers

We thank our great team! You are the best!

Ahuva

Tzila

Myriam

Sigal

Gil

Yael

Shani

Dana

Yoni