Visual teacher learning, review of a decade of research

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Symposium
How Teachers' Professional Vision Translates into Teaching Action

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Introduction

- How to encourage *transfer* between
  - THOUGHT > knowledge construction (traditionally the object of methods courses and one-shot PD courses) and
  - ACTION > competence acquisition and development (traditionally taking place in student teaching and daily teaching practice)?

- Digital video (DV) has *unique features* that help move from traditionally dominant deductive, linear conceptions of teacher learning to inductive, cyclical approaches:

  - focus on the "pedagogical triangle": interaction between learners, content of learning and teacher

  - concreteness entails subject / domain specificity

  - moving images invoke vicarious experience and emotional response

  - repeated analysis from different perspectives possible without the need for immediate action
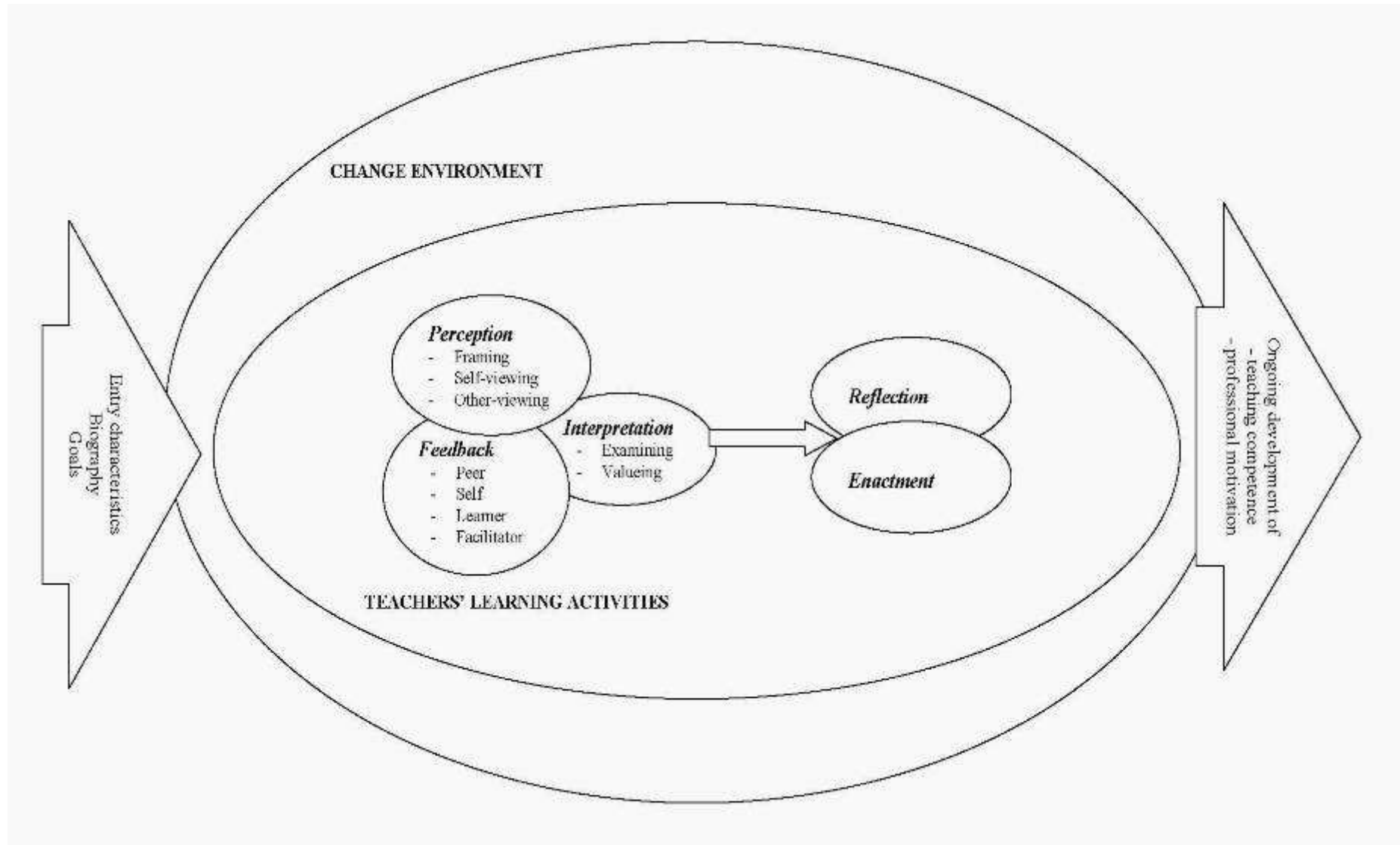
Review questions

When using DV for their own learning,

I. what,

II. how and

III. in what conditions

do teachers learn?

RESULTS
PROCESSES
CONDITIONS
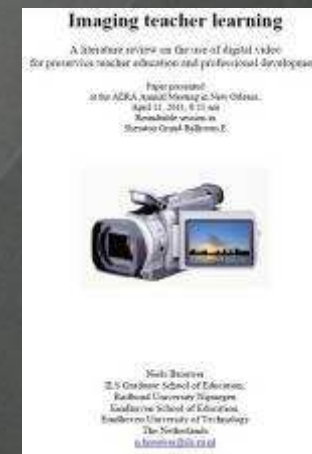
Method

- **Criteria** for source selection:
  - since 2000
  - provide theoretical concepts and insights
  - report empirical findings
  - peer-reviewed
- **Paradigms**:
  - cognitivist
  - sociocultural
  - literary / semiotic
- **Analysis**:
  - source reference
  - intervention characteristics (country; school type; teacher career phase; subject; training activity; duration; IT settings & tools)
  - research goal and questions
  - research design (N; instruments; methods of analysis)
  - findings in terms of Visual Teacher Learning Model (VTLM)

CHANGE ENVIRONMENT

Entry characteristics
Biography
Goals

Perception
- Framing
- Self-viewing
- Other-viewing

Feedback
- Peer
- Self
- Learner
- Facilitator

Interpretation
- Examining
- Valueing

Reflection

Enactment

Ongoing development of
- teaching competence
- professional motivation

TEACHERS' LEARNING ACTIVITIES

Visual Teacher Learning Model
(cf. Clarke & Hollingsworth, TATE 2002)

Findings from 393 empirical sources
Themes and subthemes

I. **1. Results of visual teacher learning** (86)
    1.1 on the level of action
    1.2 on the level of thought
    1.3 relationships betweent thought and action
    1.4 differences between prospective, beginning
        and experienced teachers

II. **2. Visualisation** (146)
    2.1 Impact on viewers
    2.2 Self-viewing vs. other-viewing
    2.3 Scaffolding
    2.4 (Impact of) image characteristics

Findings from 393 empirical sources
Themes and subthemes

II.   **3. Collegial cooperation** (91)
       3.1 settings and grouping
       3.2 activities
       3.3 facilitation

III.   **4. Context** (>>)
       4.1 involvement of school leaders
       4.2 school culture
       4.3 functioning of departments

III.   **5. IT settings and tools** (70)
       5.1 video production by teachers or others
       5.2 offline DV uses
       5.3 DV use in blended settings
       5.4 online DV uses

Results of visual teacher learning

Preliminary analysis and tentative conclusions based on 47 = 55% of sources for theme 1:

- from 10 countries (mostly USA, but also Germany, Switzerland, Netherlands, Turkey, United Arab Emirates, Taiwan and others)

- regarding 9 school subjects (mostly Mathematics and Science, but also languages, Music, Sports and others)

- 14 about action (subtheme 1.1); 27 about thought (subtheme 1.2); 7 about the relation thought-action (subtheme 1.3)

- Differences depending on career phase (subtheme 1.4) will be analysed later

- Duration of intervention (known from 17 sources): average 5 months; median 3 months; maximum 1 year; minimum 1 month

1.1 The nature of change in teachers' action after participating in VTL

- More initiative and activating role in the classroom
  - acquiring / developing / sustaining basic teaching skills
  - talking less oneself <> eliciting learners to engage with and talk about lesson content resulting in more on-task learner behaviour
  - more open and probing questioning
  - stimulating higher-order thinking

- Giving more and more focused feedback

- (Re)acting more adaptively

- Targeting and trying out effective teaching behaviours

1.2 The nature of change in teachers' thought after participating in VTL

- Increasing lesson analysis ability:
  - identifying, naming and interpreting classroom interactions
  - paying more attention to learning processes in learners
  - conceptualising own teaching action
  - expanding pedagogical content knowledge

- Recognising effective teacher behaviours
  - increasing interest in own (positive and negative) influence on what and how learners learn
  - considering own teaching (more) in terms of standards

- Investing (more) in lesson planning:
  - discovering (more) alternatives for teaching action
  - searching for strategies to help learners solve misconceptions and overcome stumbling blocks

1.3 How teachers' thought translates into action – a hypothesis and some evidence

(cf. Kersting et al. 2012; Roth et al. 2011; Matsumura et al. 2013)

Participation in visual teacher learning, coaching activities and/or peer collaboration encourages:

- Developing and expanding pedagogical content knowledge:
  - attending to and interpreting interactions between learner, content and teacher (developing an understanding of the unfolding of events within the "instructional triangle")
  - recognising domain- and subject-specific effective teaching behaviours

- Investing in lesson planning

- Enacting step by step changes in teaching action which raise instructional quality

General conclusion:
Essential ingredients for VTL

- **GOAL SETTING**
  on the basis of:
  - teachers' personal-professional motives and intentions
  - evidence-based knowledge about effective teaching

- **PERCEPTION**
  authentic representation of content-focused interaction between teacher and learners

- **FEEDBACK**
  facilitation and framing of focused discussion by teachers of questions / issues / principles relating to pedagogical action

- **CHANGE ENVIRONMENT**
  - trust and community in collegial learning
  - just-in-time accessible hypermedia sources

Thank you for your attention

Background images from Christo's *Big Air Package* in
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Functions of digital video for teacher education and professional development

Domain of application	Function	Type of video	Other-viewing / Self-viewing
Orientation	Illustration	Trigger	Other
	Demonstration	Model	Other
Support	Instruction & Training	Model Action	Other Self
	Collegial consultation	Action	Other Self
Assessment	Progress (formative)	Action	Self
	Achievement (summative)	Model	Self

Clip features promoting teacher learning

relevant for producing model videos:

a. Show interaction between learner, subject-matter content and teacher

b. Retain the chronological sequence of the lesson

c. Show the instruction by the teacher

d. Show different perspectives of different actors

e. Give context information (using voiceovers, subtitles, interviews and the like)

f. Take into account conventions in visual language (duration, image composition, viewing direction, zoom & pan etc.)

g. Not only images, but also text make meaning and direct attention