

### Three Dimensions of Inquiry in Physics Education





# Learning outcomes of teachers as practitioners inquiring IBL in a learning group

Wim Peeters (Katholiek Onderwijs Vlaanderen - Regio Antwerpen)

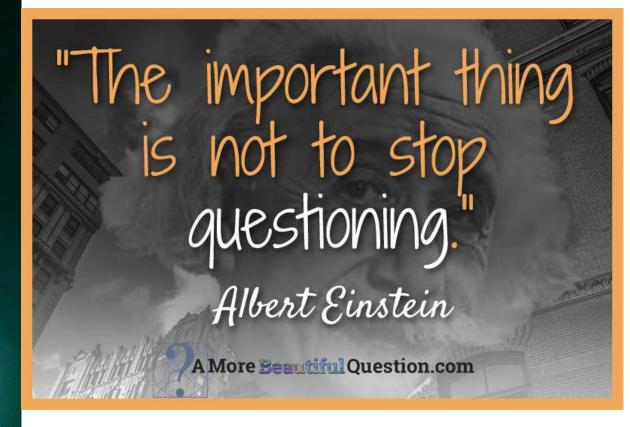


POPSUGAR

HE WHO
ASKS A QUESTION
REMAINS A FOOL
FOR FIVE MINUTES.

HE WHO
DOES NOT ASK
REMAINS A FOOL
FOREVER.

- Chinese Proverb



## Consequences of this point of view: Teachers...

... as key persons ... are the experts ... make it happen

**Educational Research and Innovation** 

## Teachers as Designers of Learning Environments

THE IMPORTANCE OF INNOVATIVE PEDAGOGIES

Alejandro Paniagua and David Istance



Centre for Educational Research and Innovation





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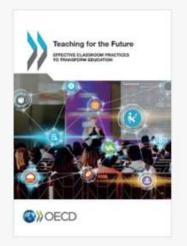
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20 Mar 2018

Catalogue

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#### **Teaching for the Future**

#### Effective Classroom Practices To Transform Education

Teachers are the most important school-related factor influencing student learning. Teachers can help level the playing field and provide opportunities for success to all their students. They can inspire students to innovate; to think and reflect and to work in collaboration with others. Good teachers can also stimulate and guide students' development so that their achievements go beyond their own expectations. Therefore, how teachers achieve this in the classroom is important to understand. Teaching for the Future: Effective Classroom Practices To Transform Education links research and data on key issues facing teachers today with teachers' own experiences to overcome challenges and create an effective classroom. This report builds on the discussions and stories shared at the Qudwa Global Teachers' Forum, organised by the Crown Prince of Abu Dhabi on 7-8 October 2017. It captures the efforts made by teachers, from across the world, to facilitate student learning and transform education to build a fairer, humane and inclusive world. The report provides an in-depth analysis of issues that teachers encounter in their day-to-day professional life, particularly those around equity and reducing personal and social disadvantage, building academic, social and emotional well-being of students through parental engagement and integrating information and communication technology in classrooms.

OECD (2018), *Teaching for the Future: Effective Classroom Practices To Transform Education*, OECD Publishing, Paris, <a href="https://doi.org/10.1787/9789264293243-en">https://doi.org/10.1787/9789264293243-en</a>.

## TEACHERS TAKING CONTROL OVER THEIR JOB

- ... as experts
- ... as practitioners
- ... being reflective
- ... having an attitude of learning

How to take control, what does it mean in my reality, in my practice as a teacher?

Many pieces of advice in research:

J. Hattie, N. Dana, W. Harlen

### 10 MINDFRAMES FOR VISIBLE LEARNING

Created by John Hattie

#### I'M AN EVALUATOR

My fundamental task is to evaluate the effect of my teaching on students' learning and achievement, or "Know Thy Impact"



### 2

#### ASSESSMENT SHOWS ME

All assessments, including formative assessments, are a reflection of my effort more than the students'

#### I COLLABORATE

While teamwork is ensential, actuits don't do it nearly so well as students





#### I'M A CHANGE AGENT

The success (and failure) of my students' learning is about what I do or don't do

#### I TAKE ON CHALLENGES AND DON'T FEAR FAILURE

John Hattle likes to key "Making errors is the best way to learn"





#### I GIVE AND TAKE

#### FEEDBACK

I help students understand feedback and I interpret and act on feedback given to me

#### I TEACH THROUGH DIALOGUE, NOT MONOLOGUE

MONOLOGUE This involves listening much more than failing



#### I USE OUR SCHOOL'S COMMON "LANGUAGE" OF LEARNING

So that everyone knows what succeesful impact looks like

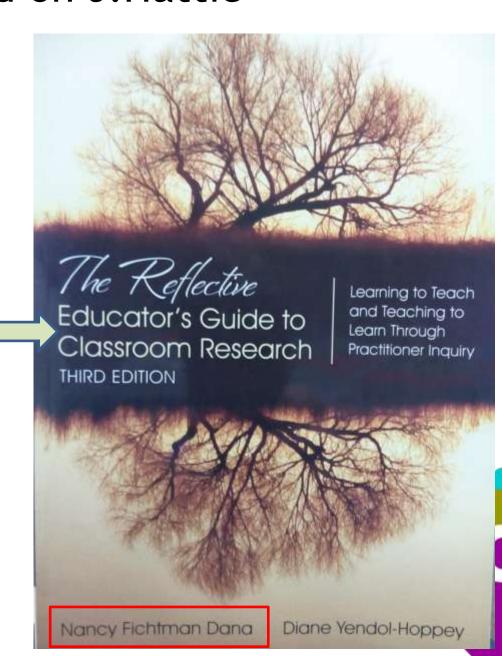
#### I DEVELOP POSITIVE RELATIONSHIPS

9

10

I TALK ABOUT
"LEARNING" MUCH
MORE THAN "TEACHING"
This waspe the shutent at the
center of the conversation

Based on J. Hattie



## What is PI? How? Why?

Practitioner inquiry refers to strategies practitioners employ mainly to systematically help them

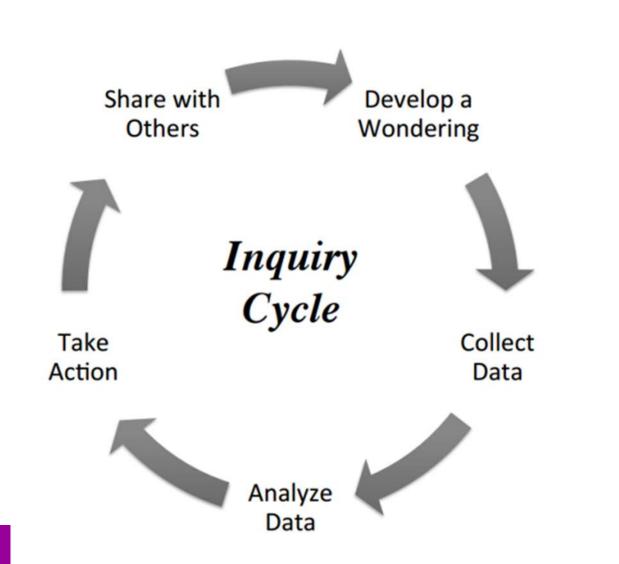
- (a) gain better information about their practice and
- (b) improve their practice in line with this information.
- (... for better results of learners!)
- (... in the field of IBL)
- $\Rightarrow$  cyclic, it is a learning process
- $\Rightarrow$  in a group, with a group as support

PLC of T

## Objectives of PI: you...

- Understand the relationship between your practice, the results of practitioner inquiry and relevant results of academic research
- Are aware that practitioner inquiry is a professional lear the grant gr
- Will be able to reflect on your practice and generate inquiry questions to improve your practice
- Will learn how to set up an inquiry plant of ind an answer to your question
- Become aware of the wide angle of relevant methods of collecting data during your praction ner inquiry;
- Can use the outcomes of practitioner inquiry to take appropriate actions to entire ce your practice, e.g. better results of learners on IBL;
- Company colls, experiences of best practice and materials developed by SIPh to realize practitioner research, professional learning communities & easy access to relevant results of academic research;
- Are aware that the PLC is essential for improving the practitioner inquiry of the members.

## Nancy Dana (U. Florida)



## H.Timperley (U. Auckland) (2014 version, clear)

Teacher inquiry and knowledge-building cycle to promote valued student outcomes



#### 2017 model:

https://youtu.be/I91pnGkL7qw

#### 2 extensions:

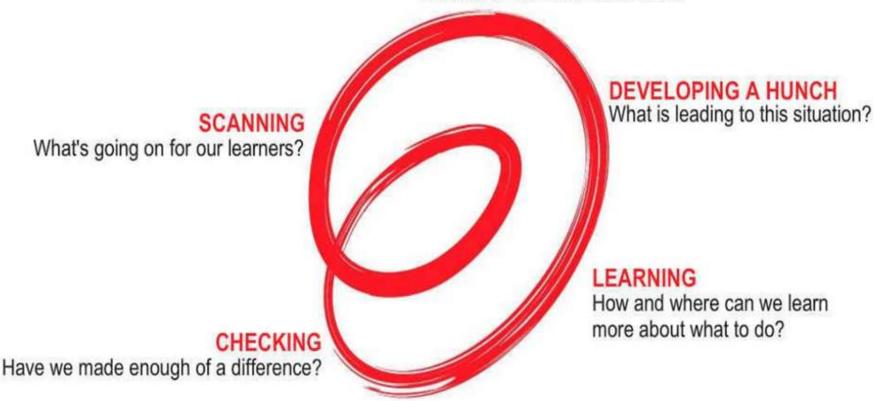
- => to groups of teachers
- => to school leaders

What's going on for our learners? How do we know? Why does this matter?

2017 version, more sophisticated, needs more and broader engagement from the school (leaders). Look at <u>this article</u>.

#### **FOCUSING**

What does our focus need to be?



Source: Seminar Series 234

A framework for transforming learning in schools:

Innovation and the spiral of inquiry

Helen Timperley, Linda Kaser and Judy Halbert 2014

#### TAKING ACTION

What will we do differently?



Timperley: students at the center, PI on how a teacher can improve his practice (skills, knowledge, methods) to enhance students' learning. Effect must be measured. Collaborative learning in *next model*.

Both are very powerful; in practice, one jumps from one model to another, as long as it suits the teacher. In 3DIPhE key elements are: professional learning in groups, evidence provided by teachers (PI), IBL for students

Dana: teacher is reflective, is aware of his needs. In reality, very often teachers' needs are formulated in such a way that students' results improve. Dana stresses the evidence based stance, and sharing with others.



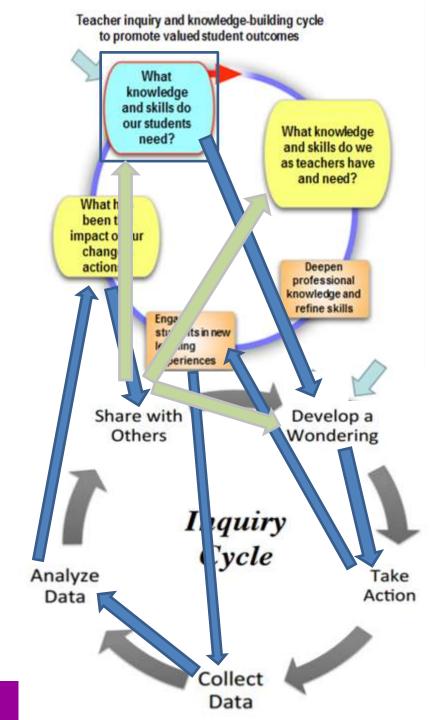
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Consider both models as pieces of advice, learn from them, but be practical, confident, professional when applying them.





In practice, one jumps from one model to another, as long as it supports the insights of the teacher, her/his learning, in view of better results for the students.

Next cycle....



## The role of the group, the collaborativeness



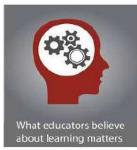
To use digital technologies to engage in collaboration with other educators, sharing and exchanging knowledge and experience, and collaboratively innovating pedagogic practices.

		****	
3. Into action	3.3 Coping with uncer- tainty, ambi- guity and risk	Make decisions dealing with uncertainty, ambiguity and risk	<ul> <li>Make decisions when the result of that decision is uncertain, when the information available is partial or ambiguous, or when there is a risk of unintended outcomes</li> <li>Within the value-creating process, include structured ways of testing ideas and prototypes from the early stages, to reduce risks of failing</li> <li>Handle fast-moving situations promptly and flexibly</li> </ul>
	3.4 Working with others	Team up, collab- orate and net- work	<ul> <li>Work together and co-operate with others to develop ideas and turn them into action</li> <li>Network</li> <li>Solve conflicts and face up to competition positively when necessary</li> </ul>

Listen actively.	I can show empathy towards others.	I can discuss the benefits of listening to other people's ideas for achieving my (or my team's) goals.	I can listen to other people's ideas for creating value without showing prejudice.	I can listen to my end users.	I can describe different techniques fo managing relationships with end user
Team up.	I am open to working alone as well as with others, playing different roles and taking some responsibility.	I am willing to change my way of working in a group.	I can work with a range of individuals and teams.	I share the ownership of value-creating activities with the members of my team	I can build a team based o the individual knowledge, sl and attitudes each member
Work together.	I am open to involving others in my value-creating activities.	I can contribute to simple value- creating activities.	I can contrib- ute to group decision- making constructively.	I can create a team of people who can work together in a value-creating activity.	I can use techniques ar tools that help people to wor together.



## Hattie's Ten Mind Frames for Educators

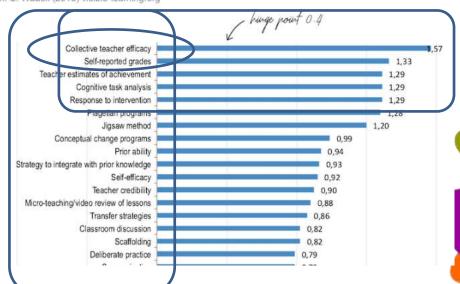


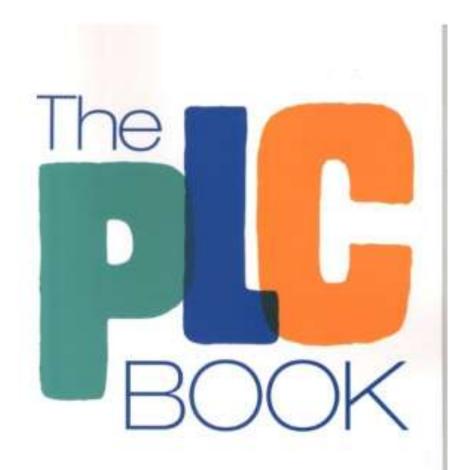
- 1. My fundamental task is to evaluate the effect of my teaching on students' learning and achievement.
- 2. The success and failure of my students' learning is about what I do or don't do. I am a change agent.
- 3. I want to talk more about learning than teaching.
- 4. Assessment is about my impact.
- 5. I teach through dialogue not monologue.
- 6. I enjoy the challenge and never retreat to "doing my best".
- It's my role to develop positive relationships in class and staffrooms.
- 8. I inform all about the language of learning.
- 9. I recognize that learning is hard work.

10. I collaborate.

nattie's 2018 updated list of factors related to student achievement: 252 influences and effect sizes (Cohen's d)

Source: J. Hattie (December 2017) visiblelearningplus.com Diagram: S. Waack (2018) visible-learning.org





Nancy Fichtman Dana Diane Yendol-Hoppey

## My wish and motivation

Look for this tiny bit of "the child in you" Wonder about your job, make it more satisfactory

.... Learn...

Because

"If the teachers stop learning, also their students stop" (Nancy Dana)