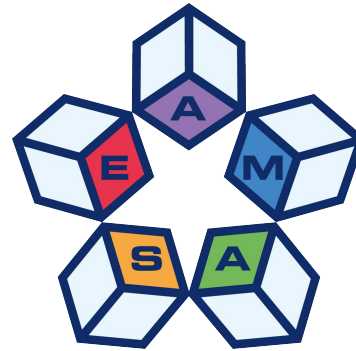




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Amase

Advanced Materials science for Advanced STEM Education

Teacher Research within AMASE



Teacher Research - Practitioner Inquiry (PI)

How to improve your own teaching practice?



The inquiry proces: PI Methodology



Teacher Research Practitioner Inquiry



Qualitative inquiry of the own teaching practice

Dana, N. F., en Yendol-Hoppey, D. (2014). Teacher inquiry defined. *The Reflective Educator's Guide to Classroom Research: Learning to Teach and Teaching to Learn through Practitioner Enquiry*. Third Edition. Thousand Oaks: Corwin, 5-28.

'Qualitative inquiry of the own teaching practice is an inquiry by pre-service and in-service teachers giving them in a systematic way and in interaction with their environment answers to questions arising from their own teaching practice and aiming for an improvement of this teaching practice.'

Van der Donk, C., en Van Lanen, B. (2012). *Praktijkonderzoek in de school*. Tweede herziene druk. Coutinho. ISBN 978 90 469 0300 1

How to formulate a PI research question?

A good PI research question arises from your passion as a teacher!

Why did you become a teacher?

What aspects of teaching are you really passionate about?

P16 The 8 passions:

- 1) The child
- 2) The curriculum
- 3) Content knowledge
- 4) Teaching strategies
- 5) The relationship between beliefs and professional practice
- 6) The intersection between your personal and professional identities
- 7) Advocating equity and social justice
- 8) Context matters



PI research
question

From your passion as a teacher to a wondering

Examples wondering (P94)

- How can I encourage students to use scientific terms when talking about science?
- How do online demonstrations compare to live demonstrations regarding effectiveness in capturing students' interest?
- How can I take a science unit that is heavy on content, and make it more inquiry-based?
- How does 'Flipping the classroom' affect the learning gains of the students?
- ...

From a PI wondering to a PI research question

Make your wondering specific for your own teaching practice!

e.g. Learning gain: What learning gain? Knowledge? Skills? Scientific concepts?

e.g. What students? Older? Younger? With focus on science or not?

Use the [Litmustest](#) (P10)



Example wondering -> PI question

[Example with filled in Litmustest](#)

P10 Litmustest



Start	My current PI research question is:	
1.	Are you passionate about exploring this question?	
2.	Is the question focused on the students' learning?	
3.	Is your question a REAL question (the answer is not known yet)?	
4.	Is the question focused on your own teaching practice?	
5.	Is the question specific?	
6.	Can you investigate the question?	
7.	Does the answer contribute to the improvement of your teaching practice?	
Conclusion	Write the adapted version of your PI research question below:	

PI datacollection: Triangulation

Validity and reliability of the inquiry increase if:

1. data are coming from different sources;
2. these data are collected in different ways;
3. these data are collected by different people.

Van der Donk, C., en Van Lanen, B. (2012). *Praktijkonderzoek in de school*. Tweede herziene druk. Coutinho. ISBN 978 90 469 0300 1

Therefore:

1. PI by different pre-service and in-service teachers from different TDTs
2. using different data collections methods
3. completed with observations
4. and interviews.

PI Data collection

At least 3 different ways!

P33 Easy ways to collect data to your work

Examples:

- Observations with field notes
- Collecting documents of the students
- Evaluating the test results of the students
- Class discussion
- Conversation with a focus group of students
- Analysis of recordings (video, pictures)
- Keeping a diary or blog
- Conducting surveys among students
- Community of critical friends
- External observator
- Confrontation with literature



Data collection:
Triangulation

PI Data analysis

P129 Analyzing qualitative data

1. Select the **relevant** data
2. Make sure you have an **overview** of the selected data.
3. **Group/order** the data
 - a. based on your personal view;
 - b. based on a certain model from literature
4. **Label** the different categories of data.



PI Conclusion and implementation

Draw a conclusion based on the structured data!

- What is the answer to the PI research question?
- What would you do differently next time?
- What new (PI) question(s) did arise?

Implement the conclusion in your teaching practice!

- Revise the STEM learning materials
- Adapt your STEM teaching
- Start a new PI cycle



PI summary

- Think in your TDT about a good PI research question: Start from your passion!
- Apply the Litmus test to your PI research question.
- Adapt your PI research question if necessary.
- Decide about the 3 ways to collect data.
- Collect the data in your class.
- Analyse your data.
- Draw conclusions from your data
- Implement the conclusion in your teaching practice

