

MODES DE LA CONNAISSANCE | FORMAS DE CONOCIMIENTO
WAYS OF KNOWING

IB AFRICA, EUROPE & MIDDLE EAST REGIONAL CONFERENCE 2014

ROME • 16–19 OCTOBER



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Different ways of knowing in the classroom - the effect on teaching and learning-

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Overview

- A small exercise
- Six ways of knowing in the classroom: learning and teaching conceptions
 - The research & evidence
 - The ways of knowing (languages)
 - What this means in teaching
- Return to the exercise:
 - conceptions of understanding
 - conceptions of a good textbook



Image:Wikipedia

A small exercise

- What does understanding mean to you? When have you really understood something?
- What is a good textbook?

Keep your answers close

Ways of knowing in the classroom

Learning and teaching conceptions

- 35 yrs research; 900+ students; 43 teachers; higher education
- Written essays and email conversations
- What does **learning** mean to you?
- What is **good teaching**?
- Other words studied are: intelligence, applying, understanding, insight, good assessment, good textbook, excellence etc.
- The Meaning of Learning and Knowing (SensePublishers.com)

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Image:Wikipedia



Languages of knowing and memorising

the starting point



Learning-teaching conceptions

1: *Increasing knowledge*

- synonyms and examples
- knowing a lot
- only correct and incorrect answers
- **role of student** listening, taking notes and memorising (obedience)
- experts know everything/ the truth
- **understanding** = recognise everything, every word and sentence
- **application** = comparing to reality
- **good teaching** = clear, good explanation, clear structure, no interruptions

2: *Memorising and selection*

- main points and details (teacher defines)
- knowing a lot (selective memorising)
- correct, incorrect and yet unknown answers
- **role of student:** listening, memorising, asking some questions, reproduction on a test
- experts know a lot = the truth
- **understanding** = knowing main point and details en capable of reproduction on a test
- **application** = reproduction of knowledge at a test
- **good teaching** = clear structure, good explanation, some humor within limits, some questions: what is part of the assessment



Learning-teaching conception2

... Well, it's to learn what's in the books. In principle it means to learn in order to be able to answer the questions which the teacher gives you ... (Säljö, 1979a, p. 14)

I have understood a text when I literally understand what is said and when I can apply this in an exam. For me to understand a “text” and to apply it is

If I could do the exercises then I knew I mastered the subject matter. †

... , you had learnt something sufficiently if you could reproduce the desired answers on tests, leading to a pass.

... When I was a secondary school teacher, I think that I saw myself as a passer on of information. I hope that my lessons were humorous and I hoped that the children liked me and therefore were prepared to work for me because of this. I also worked hard – My results were good (in exams) and I had a good relationship with the students. That was then.

Languages of skills and expertise

the great divide

quantity -> quality

knowledge reproduction -> knowledge construction



Learning-teaching conceptions

3: *Reproductive application*

- what proves important **later**
- solving known (structured) problems
- answers are facts or opinions; opinions are personal
- Listening, memorizing, application and discussion (exchanging opinions)
- experts do not know more than you
- **understanding** = applying
- **applying** = using known rules and knowledge in an algorithmic way
- **Good teaching** = practice, cases, practical, interaction and exchanging opinions

4: *Learning to think*

- adopting a way of thinking and working
- solving ill-structured problems
- answers need to be evidence based
- Thinking for yourself, supporting opinions, analysis and using criteria
- you become the expert
- **understanding** = making connections
- **applying** = using a way of thinking, applying flexible/heuristic
- **Good teaching** = challenging to think for yourself, develop understanding, mentoring/coaching not steering

Learning-teaching conception 3

[An ideal teacher is] a teacher who uses a lot of examples from practice and connects these to the literature, and he/she should invite discussions during the lecture so that sufficient interaction takes place. In addition, I feel it is important that a teacher motivates students for his subject using his enthusiasm; I feel humour is very important in lectures. Furthermore it is important that a teacher gives feedback to his students in a positive way. This means not only emphasising the negative, but also evoking the best in his students.

Very roughly you can say the “being able to apply what is learned” means that you must be able to solve a given problem, either at an exam, either from practice or otherwise. [using] the knowledge provided. This can be more

Learning-teaching conception 4

Yes, to learn ... well it is not just a matter of learning facts. It is also to understand, to see contexts and to be able to use knowledge to draw conclusions, to think independently... I think I learned that at school... well perhaps everyone doesn't learn that, but I think I have... (Säljö, 1979a, p. 17)

The ideal teacher would be someone who consciously challenges me to think to achieve a goal (a grade). The teacher should then just let me go and not steer me too much. In this way I can find out for myself whether something is or is not possible or true. Assessment should then need to focus on the process and not so much on the end result. An ideal teacher should also have an hour or two a week to interact with students in a different way. Informal conversations in a bar for instance, would be a stimulus for both student and teacher because of the informal nature. The aim of teaching is not such much the knowledge accumulated, but [that it] improves and broadens the way of thinking.

other aspects of learning also come into play, namely the extent of the learning outcome, the joy that was experienced during learning, and the measure in which that what is learned is applicable in other situations. These aspects reflect the quality of learning. ...

Furthermore, it is important that teaching encourages you to think further. That you are stimulated to make connections and that it challenges you.

Languages of excellence

focus shifts from knowing to being

how do you think -> who you are
(epistemology -> ontology)



Learning-teaching conceptions

5: *Multiple perspectives*

- seeing things from different perspectives
- personal development
- answers depend on perspective/ context/ culture: relativism

- dialogue and changing perspectives
- experts all see things differently

- **understanding** = formulating your own argumentation
- **application** = approaching questions from different perspectives/disciplines
- **Good teaching** = dialogue and travelling together

6: *Identity*

- searching for wisdom
- finding out who you feel you are
- choices manifest who you are (ambition, partner and work choices; often socially unconventional)

- authenticity and respect
- cognition and affect

- **understanding** = deeper knowing and ownership
- **application** = putting knowledge and systems to use for the greater good
- **Good teaching** = if teacher is an authentic person, teaching techniques are irrelevant

Learning-teaching conception 5

Good teaching explicitly shows its own limitations. [This happens when] one first discusses the assumptions, implicit truths and methods [all] underpinning the discipline and one places the subject matter in a context. The context can be historical, societal, religious, etcetera. Then it makes more sense. ... Furthermore I prefer studying in a group as small as possible, because often lots of questions are raised and to answer them seriously the teacher needs to tell the other side of the story as well...

Learning is broadening your perspective and becoming better in supporting your answers with arguments based on the knowledge you have. What I want to achieve with learning is acquiring sufficient knowledge to be able to argue my view points well, this means with (factual) knowledge. Something important I learned is being able to think logically ... (Marius, level-five-thinker)

Through learning you begin to see things from different perspectives, from different points of view. That is what I mean with broadening your perspective!

The most flexible type of learning [to me is] using knowledge to develop new insights. To think of new areas of application, to adapt knowledge to new situations, to adapt theory, and the awareness that theory knows no absolute truth, and that learning is a form of renewal of the way one sees the world.

Learning-teaching conception 6

... expanding yourself. It is being more alive, more aware, feeling more in control. You tend to think that life just took hold of you and did what it wanted with you and I think that you come to realise that now you should take hold of life and make it go your way because you know it is possible. (p. 160)

Good teaching develops in a situation of total understanding between student and teacher. (...) To me [the] teaching method is no longer important. As long as I can see that the man/woman in front of the group is really interested in the subject and in the people before him/her, it doesn't really matter how the subject is communicated. If he/she clearly is not interested in me or the things I want to learn, then I will not open myself up to communication of knowledge.

Intelligence is 'something' that is difficult to describe, but that, I feel, can express itself in a variety of ways such as (...) creativity. ... With creativity I mean playing with the knowledge you have and creating new or adapted theories, so not parroting what other people say, but adapting what you do to your own norms and rules. (S26, p. 29)⁸

Match to the Learner Profile

Ten attributes reflecting the aims of the IB mission

“to create a better, more peaceful world through education”

- Inquiry
- Knowledgeable
- Thinkers
- Communicators

Learning Conception 4

- Principled
- Open-minded
- Caring
- Risk-takers/
Courageous
- Balanced

Learning Conception 5 & 6



	Van Rossum-Hamer	Baxter Magolda 1992, 2001	Perry 1970, 1981, 1988	Kuhn 1991, 2000, 2005	Kegan 1982, 1994	
	Learning Conception	Teaching Conception	ERM	Pilgrim's Progress	Epistemological Theories	Orders of Conscious-ness
1	Increasing knowledge	Imparting clear/well structured knowledge	Absolute Knowing	Basic Dualism (position 1)	Realist	First order
2	Memorising	Transmitting structured knowledge (acknowledging receiver)		Dualism (position 2,3)	Absolutist	Second order
3	Reproductive understanding/ application or Application foreseen	Interacting and Shaping	Transitional Knowing	Multiplicity (position 4a)	Multiplist	Third order Traditionalism
4	Understanding subject matter	Challenging to think for yourself / developing a way of thinking	Independent Knowing	The way they want you to think (position 4b)	Objective Evaluativist	Fourth order Modernism <i>Self-authorship</i>
5	Widening horizons	Dialogue teaching	Self-authored knowing	Relativism (position 5)	Conceptual Evaluativist	Fifth order Postmodernism <i>Self-transforming</i>
6	Growing self awareness	Mutual trust and authentic relationships: Caring	Internal Foundation	Commitment (position 6 and beyond)		Reconstructive Post-modernism <i>(Self-defining)</i>

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Teachers and teaching

1	Knowledge transfer	Follow book, cover the whole content
2	Knowledge transfer	Skips parts of the book to create more preparing for test
3	Skills and knowledge	Sees applying as a way to practice skills and fixed solutions
4	Systemic thinking	Picks and chooses in and around method in order to show connections / systemic thinking
5	Awareness of perspectives	Realises that pupils have naïve conceptions that may hamper learning
6	Identity development	Discovering the world and who we are together



Miscommunication: a bridge too far?

... As far as I am concerned that if you do not practice you cannot learn. The way to learning is doing ... being busy ... we need more applications, problem solving in practice

... Well, that's learning what is in the books. You have really learned something well if you can answer the questions on a test and you pass.



Image:Kozzi.com



International Baccalaureate
Baccalauréat International
Bachillerato Internacional

More than one bridge too far?

Yes, learning.... well it is not only learning facts. It is also understanding, seeing contexts and using knowledge to draw conclusions, to think independently....

... Well, that's learning what is in the books. You have really learned something well if you can answer the questions on a test and you pass.



Image:Kozzi.com

Teachers and teaching activities

Table 5.2. Teachers' time allocation per type of instructional activity

<i>Instructional activity</i>	<i>Teacher</i>			
	<i>Andy (%)</i>	<i>Betty (%)</i>	<i>Cindy (%)</i>	<i>David (%)</i>
One-Way (teacher-directed) lecture	38	35	31	15
Tutorial problem practice	25	22	14	10
In-class exams	24	5	8	9
<i>Subtotal 'traditional' practices</i>	<i>87</i>	<i>62</i>	<i>53</i>	<i>34</i>
Lab or small-group inquiry activity	0	17	30	26
Interactive discussion and questioning	2	5	6	26
<i>Subtotal 'constructivist' practices</i>	<i>2</i>	<i>22</i>	<i>36</i>	<i>52</i>
Other	11	16	11	14

Source: Tsai, 2007, Table 3

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Image:Wikipedia

Conceptions of understanding

Van Rossum, E.J. and R. Hamer (2010)

Understanding =	Good understanding means
recognise	I can recognise a correct answer
reproduce (at test)	I can reproduce the correct answer as prepared or practiced in class
solving known problems	I can solve problems and sums we have practiced in class
solving unknown problems	I know how to use what I know to address a new, unknown problem or (real life) situation
formulating own arguments	I can use what I know to formulate an argument that is based on evidence from various sources
personal relevance and wisdom	I understand something if I could have thought of this myself. It has become part of my being



Conceptions of good textbook

Van Rossum, E.J. and Hamer, R. (2013)

TC	Good textbook
1	
2	Not too much effort; no foreign language, current language, clear structure and preview at beginning, summary at end, key words in margin & test questions
3	Clear presentation & examples from practice; images that help understand & memorise; clear font and examples in boxes, preview & summary
4	A book that makes you think; well structured , chapters working from basic to complex, uncovering the essence of the subject, motivating and challenging; simplicity in style and frames
5	Every page leads to more questions than answers, put in more effort and you learn more, not too practical because that has only one truth, books make you see things differently
6	You decide what should be in the book, you choose a theme, explore the literature, deepen and examine meaning

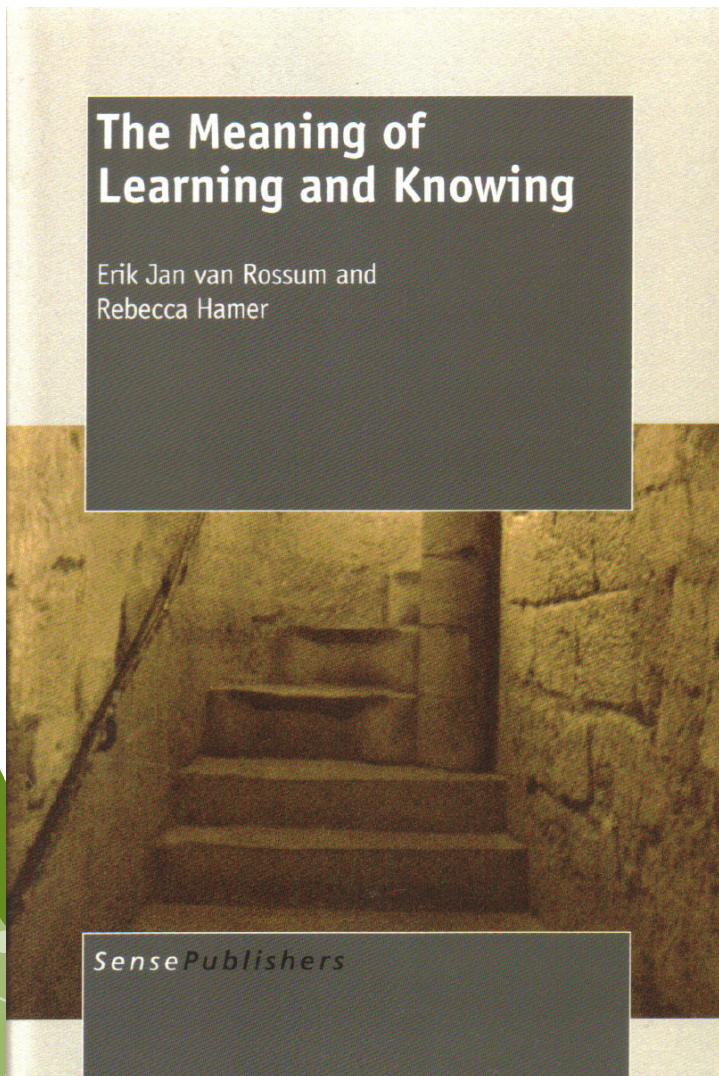


Conclusions

- The Learner Profile is very ambitious
- Many teachers are unaware of how pupils think about learning and knowing
- How teachers think about learning and teaching often shapes how they teach or want to teach
- Teaching and testing influences how students learn (initially)
- Deep subject expertise is essential for constructivist teaching

Teachers can educate/lead pupils to their own epistemological level but not beyond

More?



The Meaning of Learning and Knowing Sense Publishers

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