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
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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  • Conceptions of a good textbook
Languages of knowing and memorising

the starting point
## Learning-teaching conceptions

<table>
<thead>
<tr>
<th>1: Increasing knowledge</th>
<th>2: Memorising and selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>• synonyms and examples</td>
<td>• main points and details (teacher defines)</td>
</tr>
<tr>
<td>• knowing a lot</td>
<td>• knowing a lot (selective memorising)</td>
</tr>
<tr>
<td>• only correct and incorrect answers</td>
<td>• correct, incorrect and yet unknown answers</td>
</tr>
<tr>
<td><strong>role of student</strong> listening, taking notes and memorising (obedience)</td>
<td><strong>role of student</strong>: listening, memorising, asking some questions, reproduction on a test</td>
</tr>
<tr>
<td>• experts know everything/ the truth</td>
<td>• experts know a lot = the truth</td>
</tr>
<tr>
<td><strong>understanding</strong> = recognise everything, every word and sentence</td>
<td><strong>understanding</strong> = knowing main point and details en capable of reproduction on a test</td>
</tr>
<tr>
<td><strong>application</strong> = comparing to reality</td>
<td><strong>application</strong> = reproduction of knowledge at a test</td>
</tr>
<tr>
<td><strong>good teaching</strong> = clear, good explanation, clear structure, no interruptions</td>
<td><strong>good teaching</strong> = clear structure, good explanation, some humor within limits, some questions: what is part of the assessment</td>
</tr>
</tbody>
</table>
... 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

<table>
<thead>
<tr>
<th>3: Reproductive application</th>
<th>4: Learning to think</th>
</tr>
</thead>
</table>
| • 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 |  
• 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 |
[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

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

<table>
<thead>
<tr>
<th>5: Multiple perspectives</th>
<th>6: Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>• seeing things from different perspectives</td>
<td>• searching for wisdom</td>
</tr>
<tr>
<td>• personal development</td>
<td>• finding out who you feel you are</td>
</tr>
<tr>
<td>• answers depend on perspective/ context/ culture: relativism</td>
<td>• choices manifest who you are</td>
</tr>
<tr>
<td>• dialogue and changing perspectives</td>
<td>(ambition, partner and work choices; often socially unconventional)</td>
</tr>
<tr>
<td>• experts all see things differently</td>
<td>• authenticity and respect</td>
</tr>
</tbody>
</table>

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

- **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
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.
... 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 [that] 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)
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
- Reflective
- Principled
- Open-minded
- Caring
- Risk-takers/
  Courageous
- Balanced
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Increasing knowledge</td>
<td>Imparting clear/well structured knowledge</td>
<td>Van Rossum-Hamer</td>
<td>Basic Dualism (position 1)</td>
<td>Realist</td>
<td>First order</td>
</tr>
<tr>
<td>2 Memorising</td>
<td>Transmitting structured knowledge (acknowledging receiver)</td>
<td>Van Rossum-Hamer</td>
<td>Dualism (position 2,3)</td>
<td>Absolutist</td>
<td>Second order</td>
</tr>
<tr>
<td>3 Reproductive understanding/application or Application foreseen</td>
<td>Interacting and Shaping</td>
<td>Perry 1970, 1981, 1988 Pilgrim’s Progress</td>
<td>Multiplicity (position 4a)</td>
<td>Multiplist</td>
<td>Third order Traditionalism</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>Teachers and teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knowledge transfer</td>
</tr>
<tr>
<td>2</td>
<td>Knowledge transfer</td>
</tr>
<tr>
<td>3</td>
<td>Skills and knowledge</td>
</tr>
<tr>
<td>4</td>
<td>Systemic thinking</td>
</tr>
<tr>
<td>5</td>
<td>Awareness of perspectives</td>
</tr>
<tr>
<td>6</td>
<td>Identity development</td>
</tr>
</tbody>
</table>
… 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.
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.
### Table 5.2. Teachers’ time allocation per type of instructional activity

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

*Source: Tsai, 2007, Table 3*
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## Conceptions of understanding


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


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

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References