



An 'aha' experience

How was this aha experience brought about?

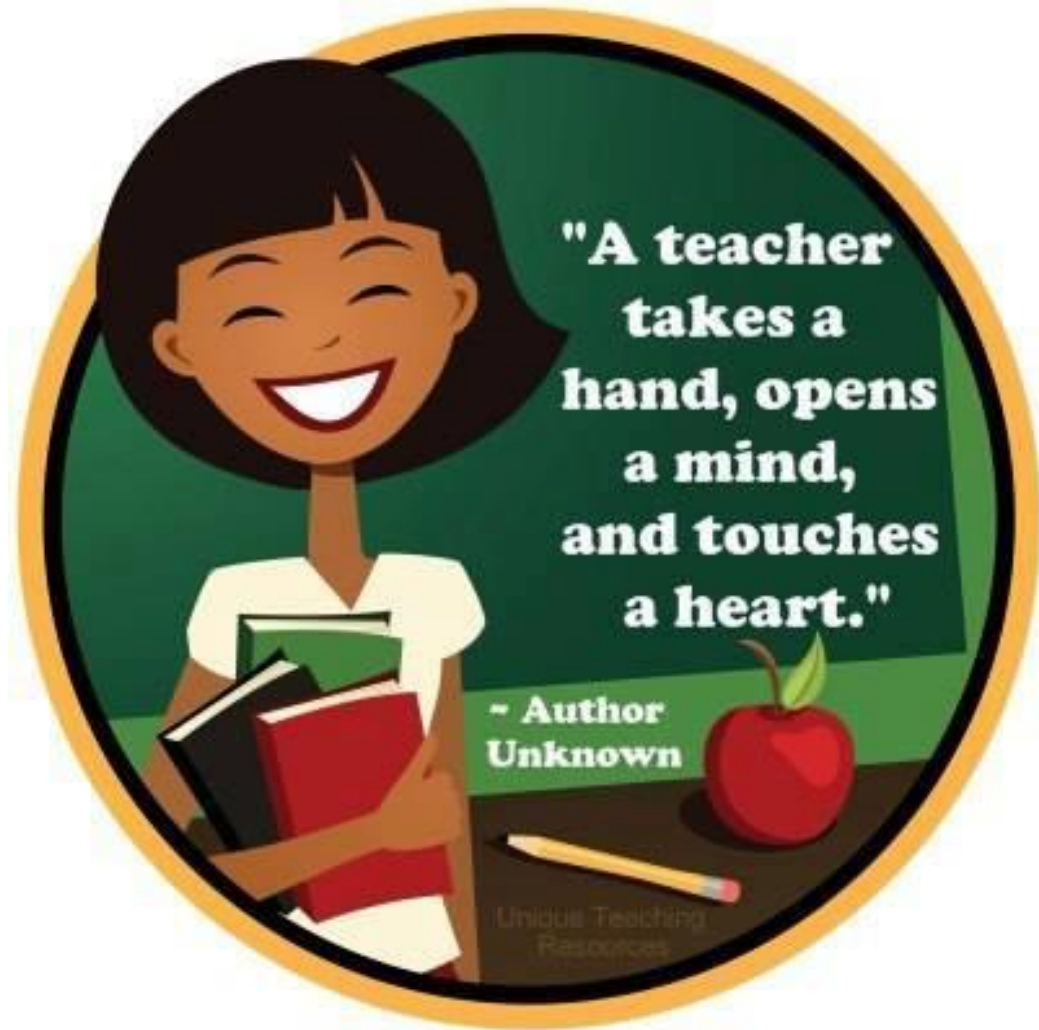
What constitutes expert teaching in business education?

What is PCK in school economics?

Can we celebrate?



“Thank you for the solid foundation in the business subjects ... I’m building upon it!”



The background features a repeating pattern of gold-colored scrollwork and floral motifs. In the center, there is a faint, light pink heart shape. The text is overlaid on this background.

GratITUDE

IS THE

Mem♥ry

OF THE

Heart

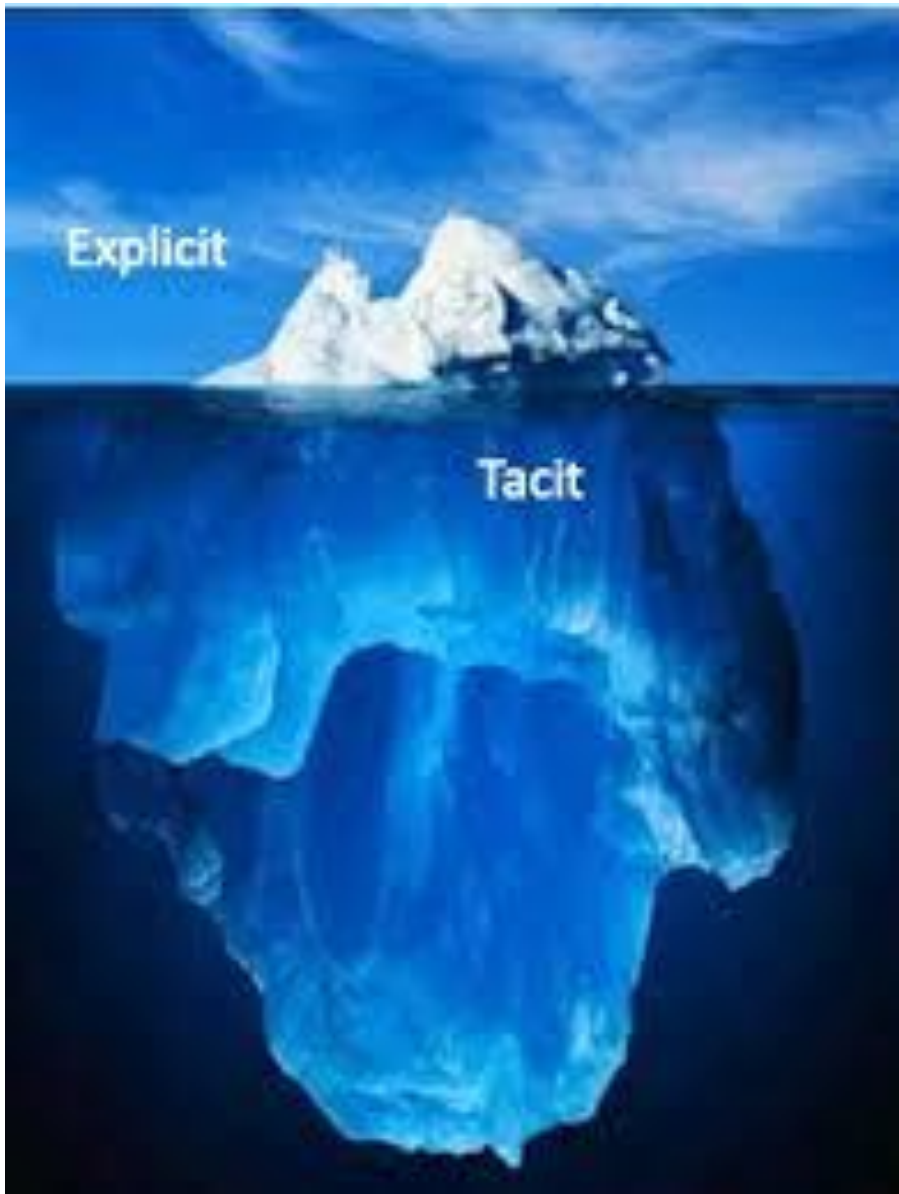
Jean BAPTISTE MASSIEU

Celebrating good practices

'In-the-head reflection' (Moore, 2004, *The Good Teacher*)

An exercise in gratitude: Reflecting in solitude, in preferred chosen places. Being aware of being negative.





Much teachers' knowledge is **tacit**.

It is thus a

challenge:

- to make it explicit, &
- in a form that is **transferable**.

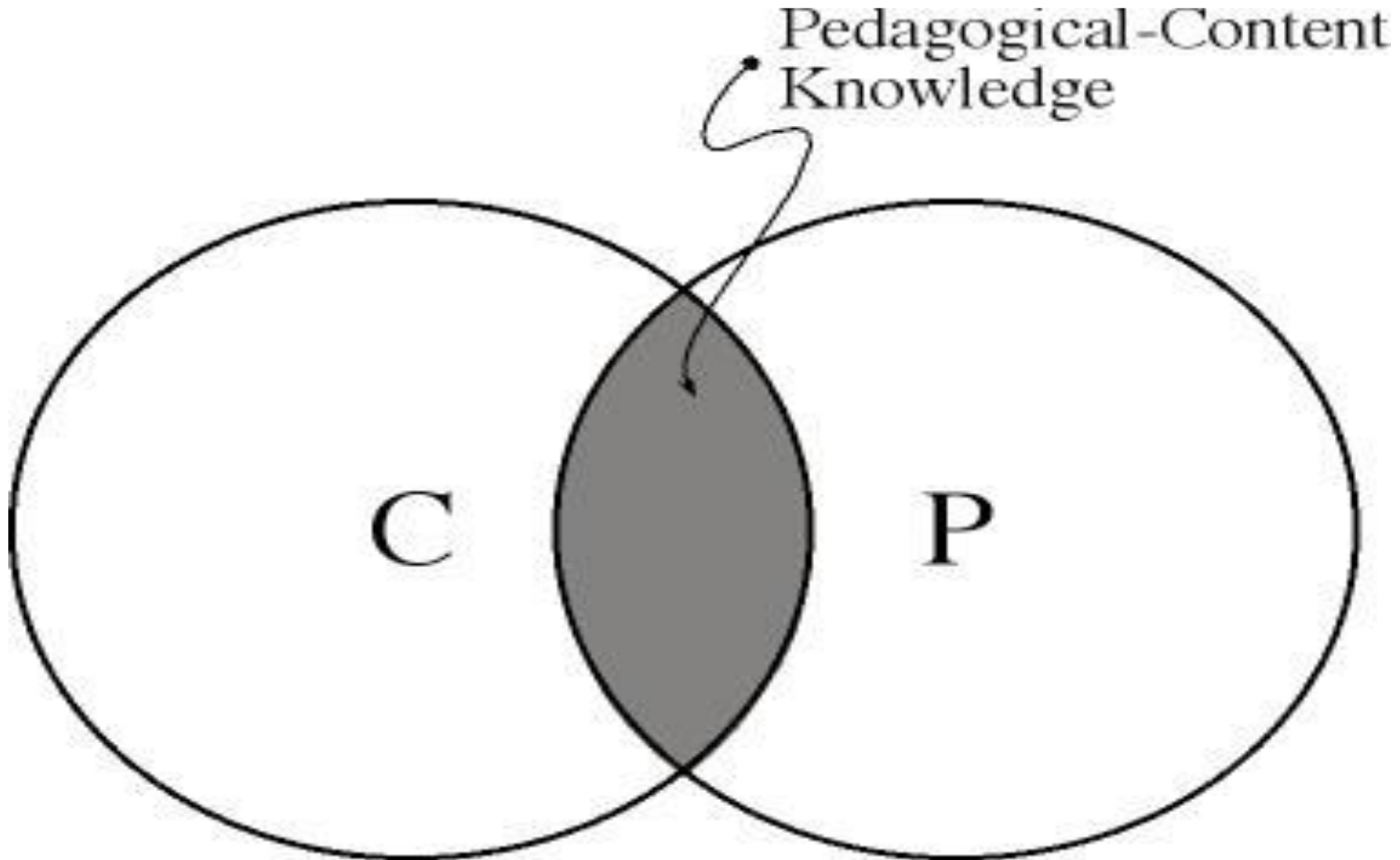
A useful notion/theoretical lenses: PCK

The notion of PCK developed by **Shulman** (1986a, 1986b, 1987)

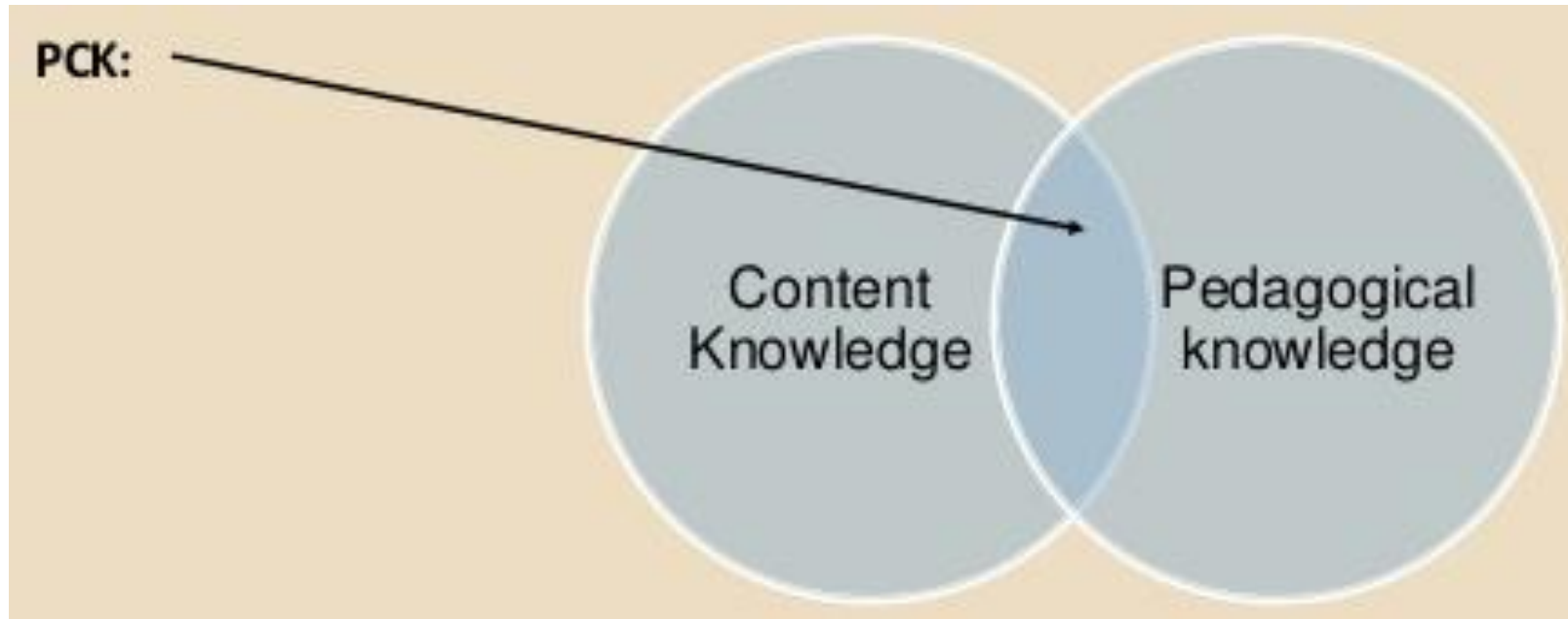
He studied the interaction between **subject content** and **pedagogy**.

How teachers **transform subject knowledge** into **a repertoire of representations** that enhance students' learning.

He emphasised the existence of a **distinctive form** of teachers' professional knowledge: **PCK**.



It is the transformation of content into pedagogically powerful forms. It contains within it the most regularly taught topics in one's subject area, the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations, and demonstrations - in a word, the ways of representing and formulating the subject that make it comprehensible to others (Shulman, 1986b, p.6).



Teacher Ian recounted how representations came to mind during informal times such as when driving: *“I immediately take note of these ideas.”* He discussed about *“thinking creatively”*:

I try to read between the lines in the news. There're many things that I can use to make the content appealing. It's a matter of being creative: finding ways of getting extracts from things that students engage with every day and apply them to economics. I think that's the primary challenge: finding something and thinking, 'What can I extract from this?'

I observed him **enacting** a discussion by showing his students a paper bag that he had found on a train in Brussels. The bag was advertising a **local beer**. He used it in the topic of international trade to elicit the advantages of countries trading with each other.

PCK represents the **blending** of content and pedagogy into an understanding of how particular topics, problems, or issues are organised, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction. (Shulman, 1987, p.8)



PCK is the **most precious possession** of a teacher.

“Acquiring PCK of sufficient depth and quality to impact student learning positively **lies at the heart** of teacher education and professional development” (Kind and Chan, 2019, p.975).

A key notion implied by PCK:
representation.

Shulman (1986b): **the ways of communicating concepts and processes** of a subject discipline.

Representation is part of transformation: the **all-important process of turning subject knowledge into knowledge for teaching**.

In the Maltese economics classroom

- **Connecting** school economics to real life (students, teacher, the real world)
- Emphasising the **process of reasoning**
- Adopting a **variety of teaching strategies** – activities, games, mind maps, case studies, role plays & drama, group work, questioning
- A **supportive classroom** climate

From Caroline's lesson:

40%, 40% and 20% of the portions

Students answered correctly the exercise at the end of the lesson.

Helped them to score well in a test question about shares.

The teacher **transformed the content into a pedagogically powerful form** that helped the students grasp the idea of shareholding.



Knowledge representations involve **four processes** (Shulman, 1987):

1. **'Preparation'**: **examining and interpreting** the materials of teaching in terms of the teacher's own understanding of the subject matter.
2. **'Selections'**: when the teacher draws upon a **repertoire** of approaches or strategies of teaching to represent the content knowledge.

3. ‘Adaptation/tailoring’: the process of delivering the represented material **according to the needs** of the learners.



“The metaphor of the football match” by teacher Mary. She used it to help her students understand that it was not a one-off increase in demand that caused demand-pull inflation but an increase in demand when the economy was operating at or near full employment level:

When the ground is empty, is there an effect on prices when people come to watch the game? ... No. There’s an increase in demand, but there’s no pressure on the price. But when the ground is nearly full, nearing full capacity, speculators start pushing ticket prices up. It’s when the ground is nearly full, and there’s still demand, that prices start to rise. This also happens in concerts.

She referred to this representation a number of times during her lesson to reinforce her learning objectives. E.g. She compared the excess capacity of an economy to the situation when the football ground was empty, and the inflationary pressures when the economy approached full employment to the situation when the ground was nearly full.



We may be **unaware** of the **tacit nature** of PCK

and the **elusiveness** involved to articulate it,

hindered by an apparently **non-existent language** to express it.

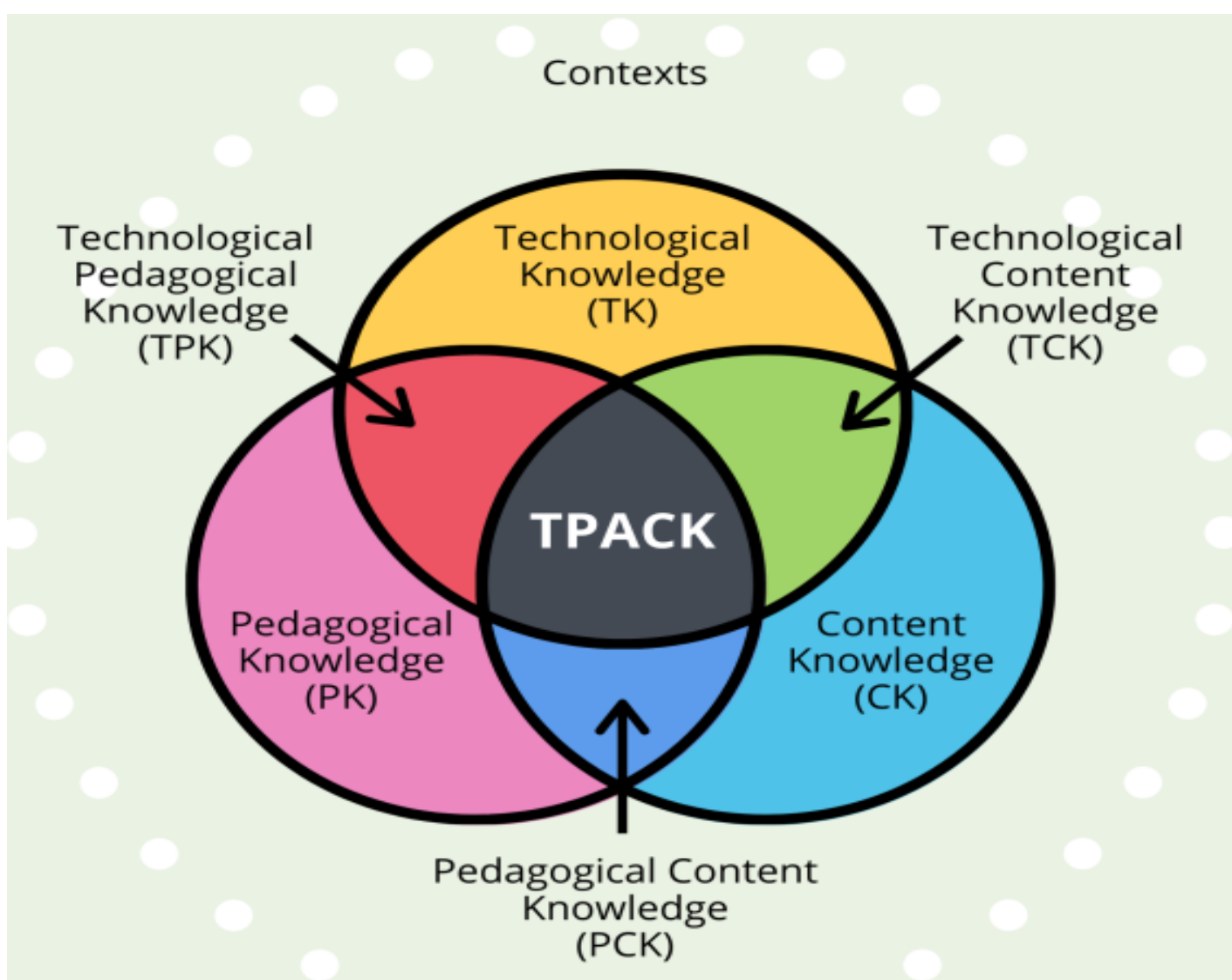
Teachers thought hard how to develop PCK representations for topics they **did not look forward to teaching**.

Teacher Ian, for instance, experienced the topic of financial institutions as too detailed: *“Students can read the functions of these organisations from their respective websites.”* He attempted to teach the topic in an appealing manner by *“being creative ... It becomes equally interesting.”* He discussed how he approached teaching the topic of production:

When I was a student, I did not like product curves, costs of production and economies of scale. These are about numbers, graphs and plotting, which I did not like! At that age, I did not perceive this topic of production as important. So, I sort of put a label on it. When I was about to teach it, I was not happy with it, because the label stayed with me. But I wanted to make something different. I wanted to make this topic interesting for my students. So I ended up changing my whole approach. For example, I started using examples from a game that the students played. ... They understood at once. ... That was a different way of approaching things!

This topic of production became his **favourite one** to teach. He claimed that this happened because he thought *“creatively how to make this topic appealing.”*

PCK variations



Technological Pedagogical Content Knowledge (Mishra and Koehler, 2006)

Set up different activities <https://learningapps.org/> and <https://wordwall.net/>

Organising online board games: <https://learnhip.com/>

Create comic strips that can assist the process of storytelling:

<https://www.storyboardthat.com/storyboard-creator>

<https://quizizz.com/>, <https://take.quiz-maker.com/> and <https://kahoot.com/>

A random wheel that can be adjusted to choose students, topics, ...

<https://pickerwheel.com/>

Videos from TikTok application, such as from

<https://twitter.com/Humphreytalks>

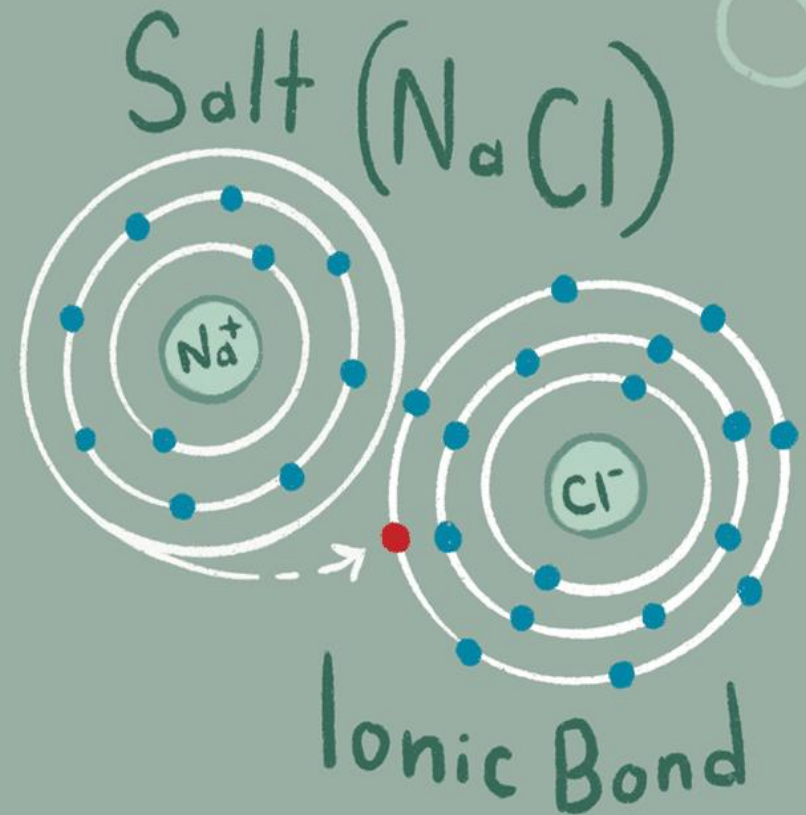
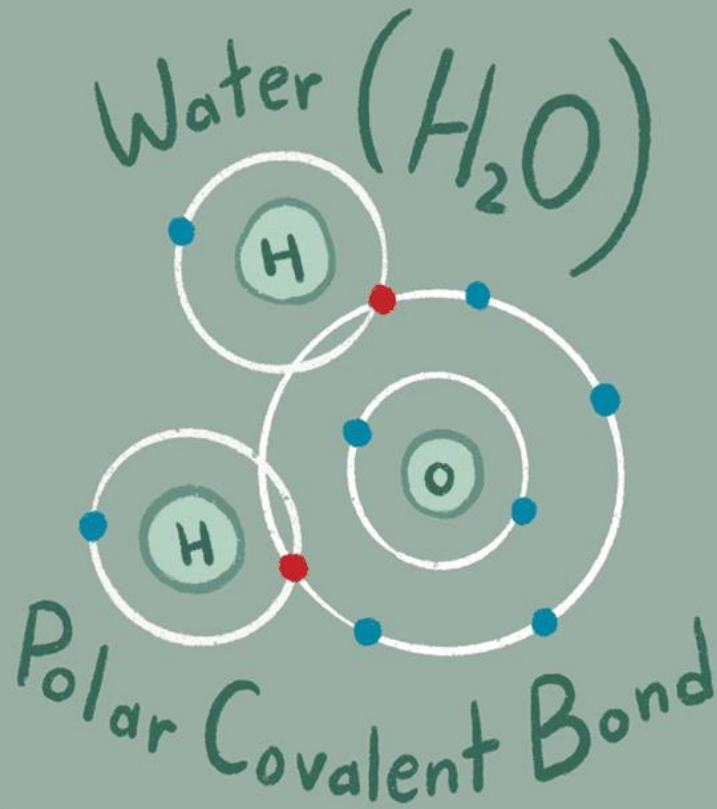
Create simple videos through such websites as

<https://www.animaker.com/>

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What Is a Molecule?

A molecule is a neutral group of two or more atoms held together by chemical bonds.



Teacher pedagogical constructions - TPCs (Hashweh, 2005)

PCK as

- a collection of teacher **professional** constructions,
- as a **form of knowledge** that preserves the **planning and wisdom** of practice acquired when repeatedly teaching a topic.

Each TPC is developed as a result of **repeated planning, reflection and teaching** of topics.

The **analogy from chemistry**:

- Each of these constructions is a molecule and **PCK is the mixture of different molecules.**
- PCK as **a collection of TPCs.**

Activities

Students mentioned activities which they particularly **enjoyed**, facilitated their **understanding** of the notions involved, and were **remembered** during their summative assessments.

Students mentioned producing **shirts to learn about specialisation, dividing a cake and producing chocolate cupcakes** to understand the notions of shareholding and production. They argued that they experienced these activities as enjoyable because they could use their imagination in learning.



Mary organised an activity involving the **production of smoothies** during the topic of production:

I ask them: 'Bring two fruits from home.' The parents send me a message: 'Why do you need fruit for an economics lesson?' They get interested and curious. ... We did the smoothie together in the classroom, and had some juice as well. Students had to explain what was happening. We had the factors of production, we input them, transformed them, and had the output. There was the transformation of inputs into an output. Through this activity we revised the fixed capital, for example the mixer, and the liquid capital – the fruit. They're seeing it happening. ... Once I use this example, I continue building upon it. For example, if we're discussing the selling of a product, I ask them: 'We have produced the smoothies. How can we sell them?' I continue with the same example, not just use it once. ... They therefore experience and remember it, and at the same time, we continue building upon it, thus assigning more relevance to the activity.

During the focus group interview, Mary's students **vividly recalled** this activity; they remarked that it assisted them to score very well in an examination question. By being engaged with the economics ideas involved, students appear to have experienced this activity as a **powerful pedagogical tool** that provided them with the opportunity to experience deep learning.

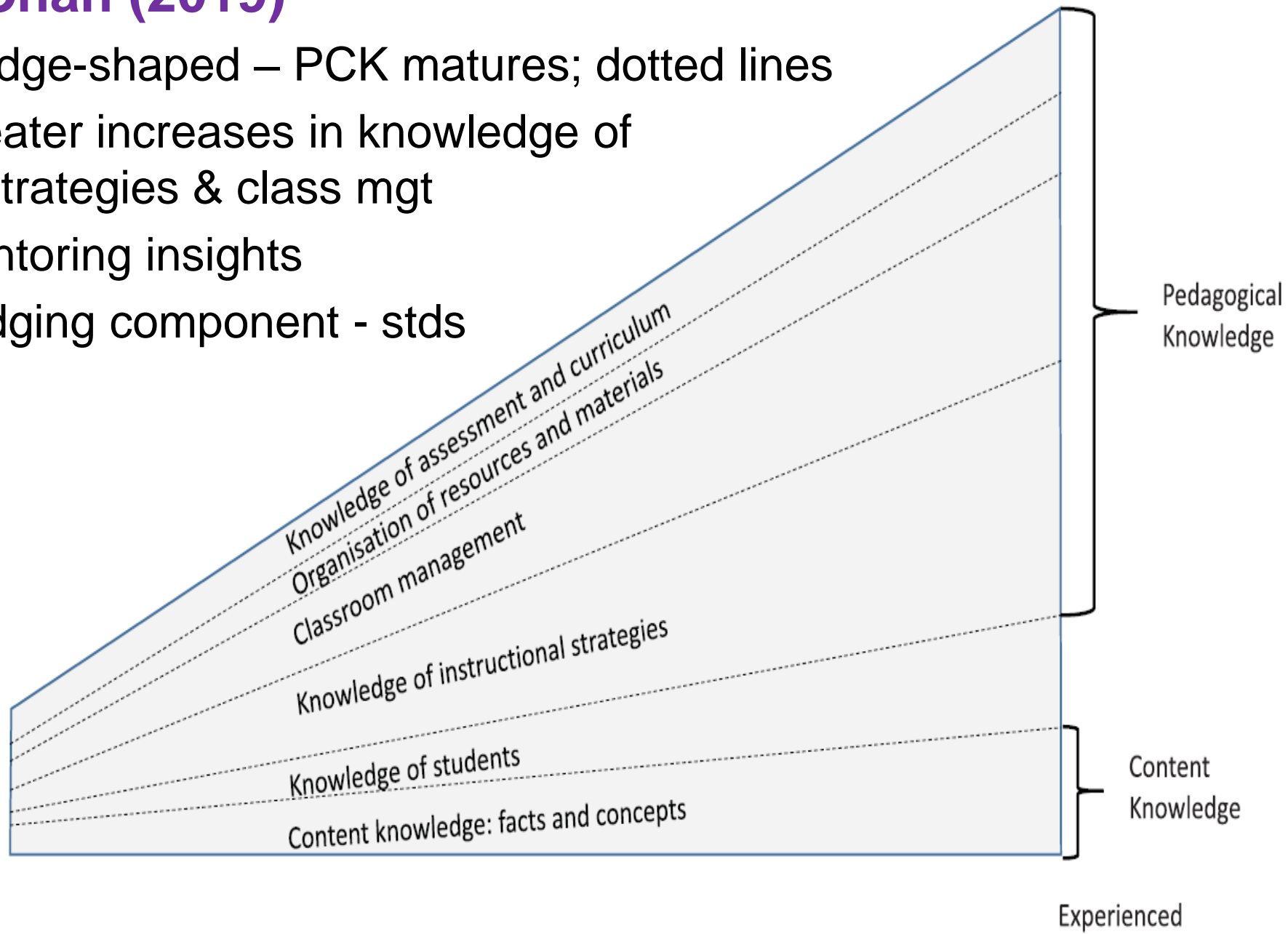
PCK as articulated by Kind and Chan (2019)

Wedge-shaped – PCK matures; dotted lines

Greater increases in knowledge of strategies & class mgt

Mentoring insights

Bridging component - stds



Similar to the other experienced teachers, it appeared to be **second nature for Mary** to think about generating PCK representations that animate the economics content.

In contrast, I observed teachers who possessed **limited teaching experience** struggling to devise these representations.

For example, being her first year of teaching, Debbie was finding it difficult how to explain to her students the idea of a country's balance of payments: *“The topic seems to be so detached from their experience that I cannot think of relevant ways how to explain the notion. In the first place, I need myself to work to be confident about the content itself.”*



During her early years of teaching, Liberata experienced **the PPC as difficult** to explain to her students. By developing a PCK representation that related to her **students' experience** of studying and relaxing after school, she was now finding it enjoyable to teach:

I tell them: 'How many hours do you have available after school before you go to sleep?' We calculate, for example, five hours. I ask them: 'What do you do during those five hours?' They come up with some responses. So basically they enjoy hours of leisure - watch television, eat, play, ... - and they have hours of study. I plot: zero hours of leisure and all study, studying three hours and enjoying two hours of leisure, and so on. We start increasing leisure time and decreasing study time, hour per hour. The opportunity cost emerges. We plot together a PPC on the whiteboard. Then I tell them: 'What if we sleep during the time when we're supposed to be studying?' That's inefficient use of resources; when I sleep, I'm doing nothing ... Then I ask them: 'You need to study for four hours but you have two hours for leisure. So you need six hours. It's outside the curve. You cannot do it with your present time and resources.' Then I ask them: 'What can be done?' 'Eh, we can stay another hour studying. ... A way of increasing our resources. The PPC shifts outwards.' I tell them: 'What happens if you start arriving home one hour later? The PPC shifts inwards. I write down these points on the whiteboard. I then explain that the same thing that happens in the everyday life of studying and leisure can happen for a business, a government, and for a whole country. I then plot a PPC of a country. Points on the curve, points inside and outside.

Photos of the work on the whiteboard relating to the PPC and shared them with her students. They **printed them out** and kept them as notes.

She remarked that *“by time I realised that they were really remembering the PPC, even the struggling ones, especially when answering the questions in tests and examinations.”*

This was a representation that some of her students mentioned in their focus group; Vince referred to it as *“an example that I keep remembering.”*

What is the 'most powerful analogy, illustration, example, explanation or demonstration' that you use?



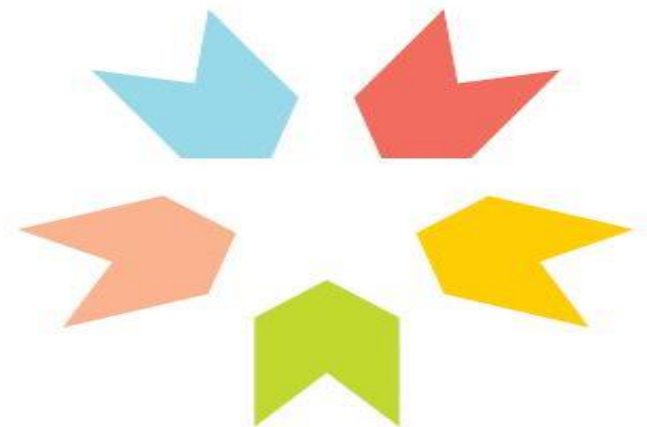


To enable access to disciplinary knowledge

PCK represents the teachers' "special form of professional understanding" (Shulman, 1987, p.9) that creates **innovation and adaptability** in Business Education.

Thanking you for your attention.

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CELEBRATE
TEACHING