

你好 Encouraging the inquiring learner, from passive to active

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Context

The problem with
'student engagement'



**Have you ever considered what
a lecture is good for?**

What are lectures good for? Talbert, R (2012)

Exemplifying ways experts think—that is, thought processes.

Providing ways to simplify complex ideas—that is, cognitive structures.

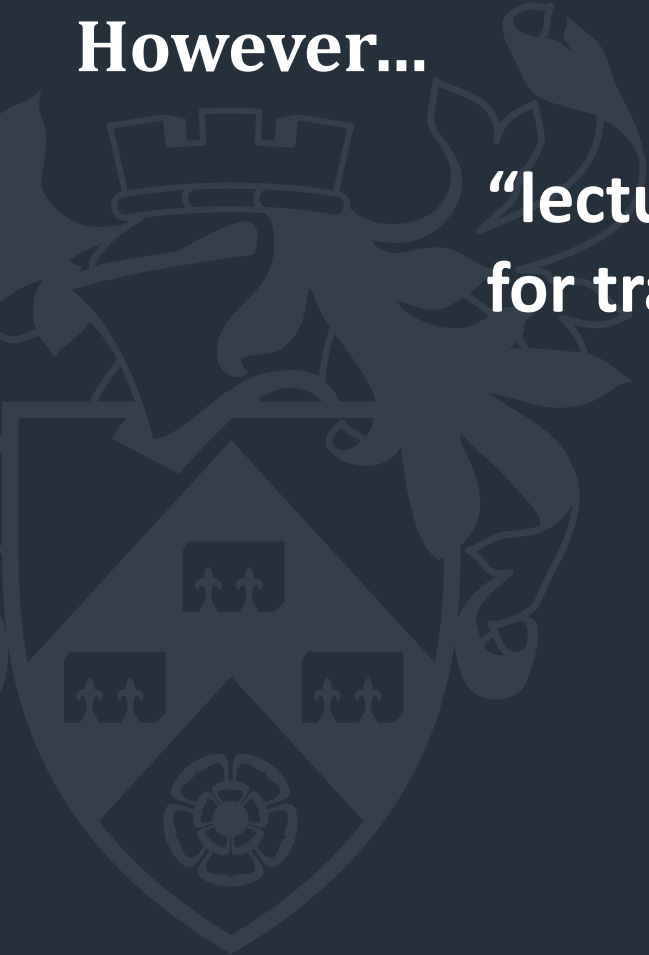
Providing context and relationships of ideas being presented.

Telling stories to not only promote analogical thinking (as he describes), but also, humanize our disciplines.

However...

**“lecture is not a particularly good vehicle
for transferring understanding”**

Talbert (2012)

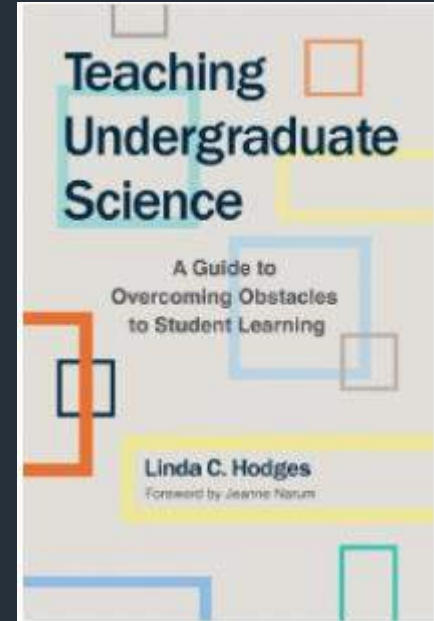


Helping students learn during class

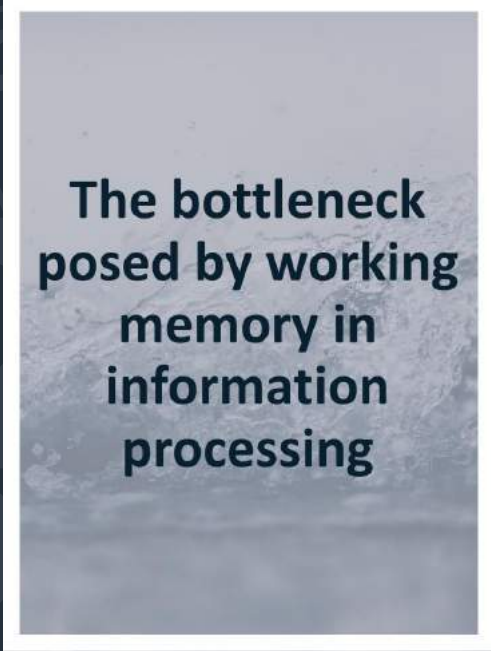
Teaching undergraduate science: A guide to overcoming obstacles to student learning

Chapter 2: Helping students learn during class

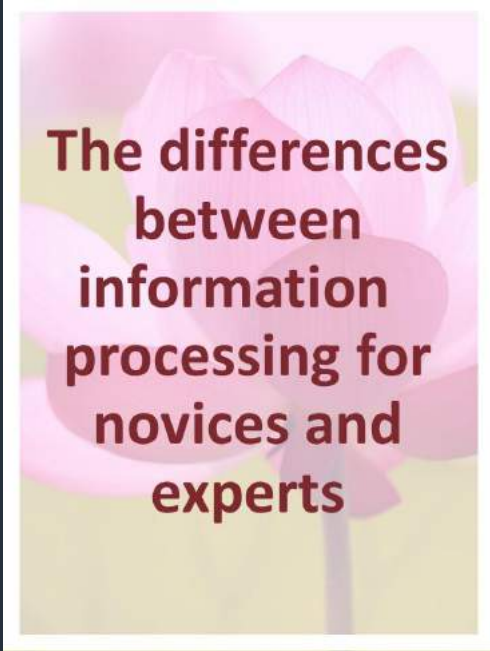
<https://paperpile.com/shared/B25FH7>



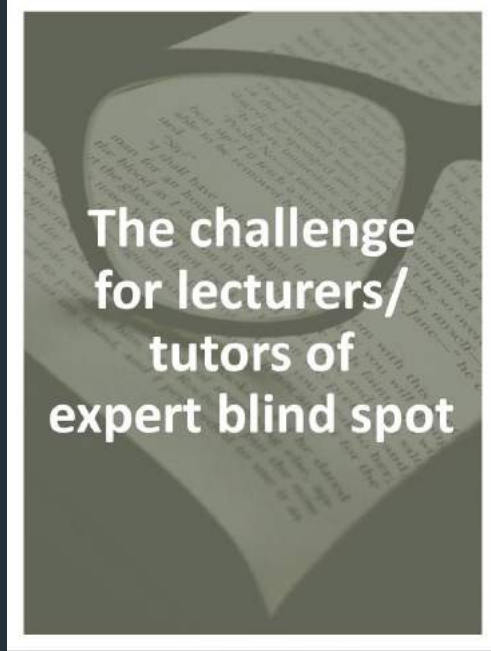
Cognitive challenges of lecture



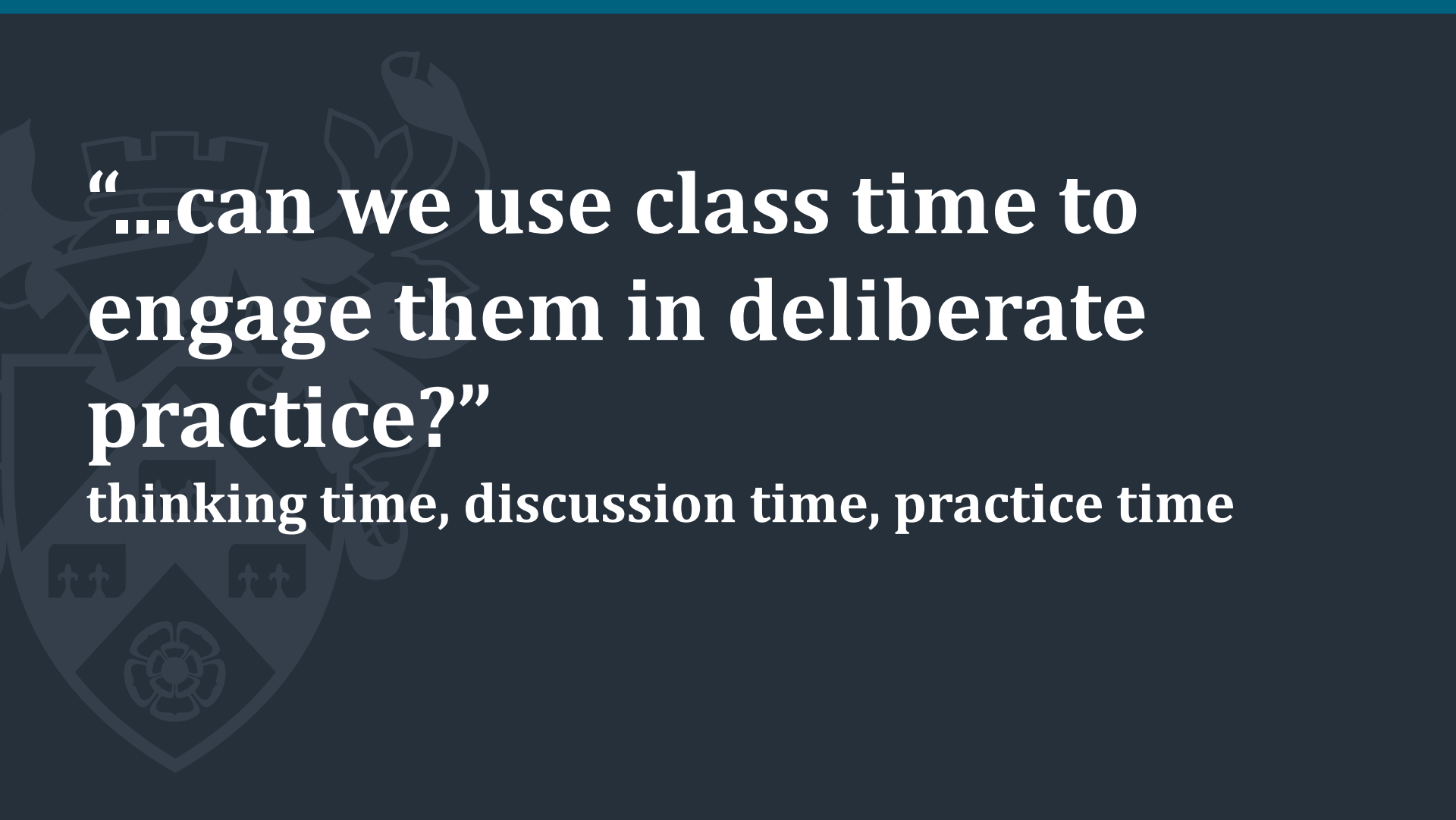
**The bottleneck
posed by working
memory in
information
processing**



**The differences
between
information
processing for
novices and
experts**



**The challenge
for lecturers/
tutors of
expert blind spot**



**“...can we use class time to
engage them in deliberate
practice?”**

thinking time, discussion time, practice time

What follows



An experience of being a ‘novice’.

The challenge of holding new concepts in your head and trying to solve problems with them.

The experience of having **thinking time**, **discussion time** and **practice time**.

How these experiences tie in with the cognitive science.



Let's play

Hands on
with Game theory



UNIVERSITY
of York

Game theory

HOW PEOPLE INTERACT

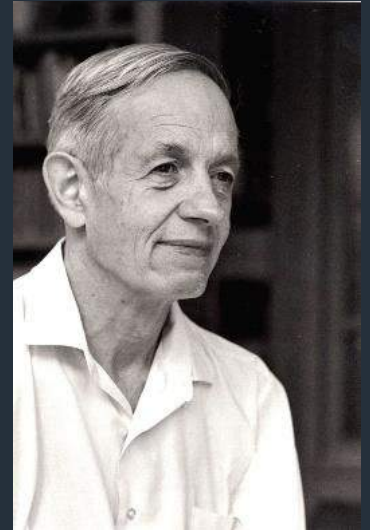


Self-interest...is that all?

Individuals motivated by self-interest can produce outcomes that are beneficial for society e.g. entrepreneurship, innovation.

However, self-interest can also be harmful to society.

Social dilemma = a situation in which actions taken independently by self-interested individuals result in a socially suboptimal outcome e.g. traffic jams, climate change.



John NASH
(1928-2015)

www.responseware.eu

Session ID: dee19

Welcome to TurningPoint

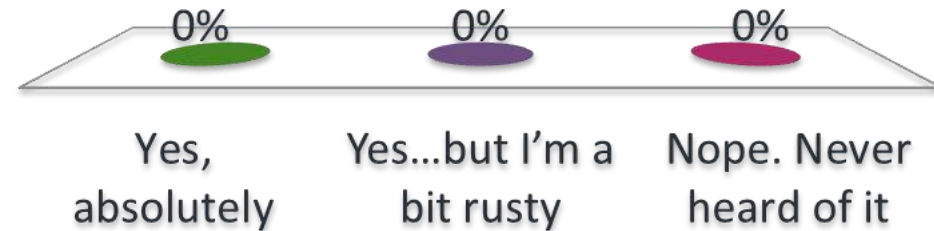
dee19

Join Session



Are you familiar with Game theory?

- A. Yes, absolutely
- B. Yes...but I'm a bit rusty
- C. Nope. Never heard of it



Modelling social interactions

A GAME describes a social interaction

- Players: Anil and Bala.
- Feasible strategies: IPC or Terminator.
- Information: no cooperation.
- Payoffs: +ve effect of protection –ve effect of pollution.

Outcome of a game: Nash equilibrium
no player has an incentive to deviate.

		Bala	
		IPC	Terminator
Anil	IPC	3, 3	1, 4
	Terminator	4, 1	2, 2

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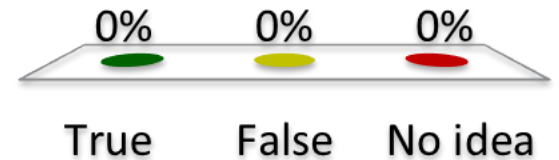
Join Session



Bala's payoff when he uses IPC and Anil uses Terminator is 1

		Bala	
		IPC	Terminator
Anil	IPC	3, 3	4, 1
	Terminator	1, 4	2, 2

- A. True
- B. False
- C. No idea



Looking for a NASH equilibrium

- Best response: strategy with the highest payoff given the other player's strategy
- Dominant strategy: a best response to all possible strategies

Anil's best response when Bala uses IPC, is to use Terminator.

Anil's best response when Bala uses Terminator, is to use Terminator

Anil's dominant strategy is to use Terminator

		Bala	
		IPC	Terminator
Anil	IPC	3, 3	1, 4
	Terminator	4, 1	2, 2

A blue star is placed next to the 'Terminator' row label, indicating it is Anil's dominant strategy.

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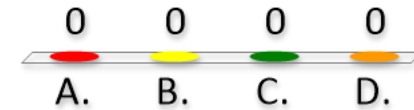
Join Session



Which of the following statements is/are correct?

- A. ✓ Bala's dominant strategy is to use Terminator
- B. Anil and Bala using IPC is the Nash equilibrium of the game
- C. ✓ Anil and Bala using Terminator is the Nash equilibrium of the game
- D. The Nash equilibrium of this game is socially optimal

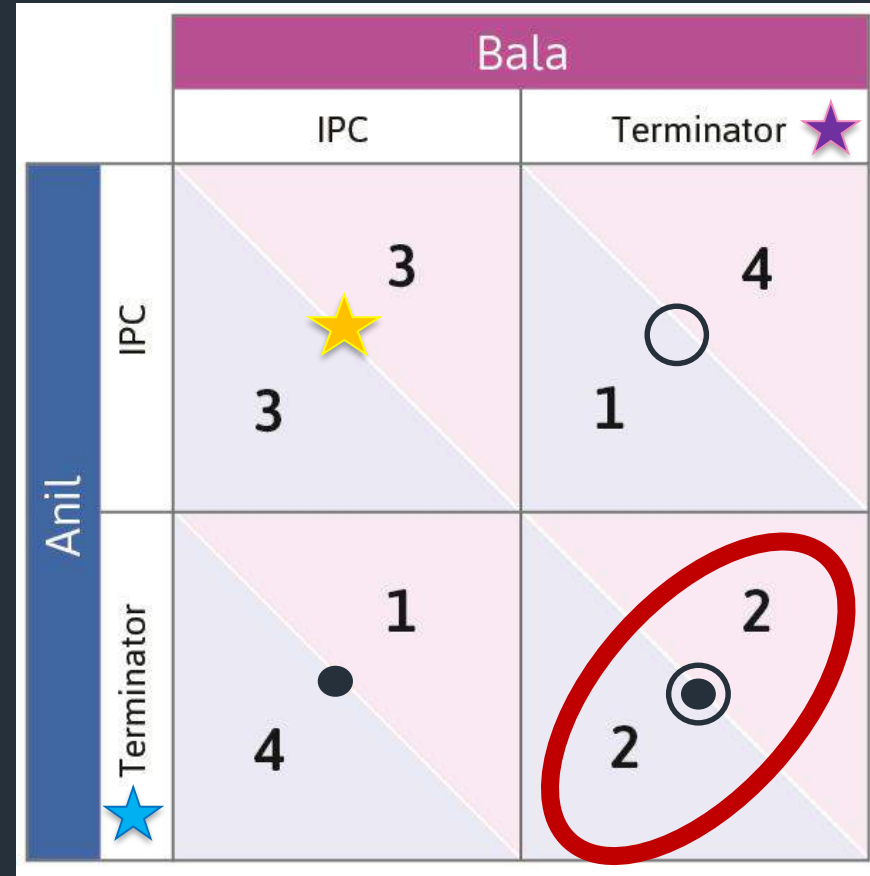
		Bala	
		IPC	Terminator
Anil	IPC	3, 3	4, 1
	Terminator	4, 1	2, 2



Social dilemma

- Bala's dominant strategy is also Terminator
- Outcome of the game (Nash equilibrium): both Anil and Bala use Terminator
- Although they would be better off if both were using IPC

The Nash equilibrium is not socially optimal





Reflections

Strategies,
tips and pitfalls

Reflections



An experience of being a ‘novice’.

The challenge of holding new concepts in your head and trying to solve problems with them.

The experience of having **thinking time**, **discussion time** and **practice time**.

How these experiences tie in with the cognitive science.

Break

2 OR 3 MINUTES

What are your ideas for active learning?

Please write down two strategies you
(could) implement in class



https://uniofnyork.padlet.org/lilian_soon/activelearningdee

Some strategies I've just used

- Interrupt lectures frequently
- Test student understanding or collect student opinion via discussion or a classroom response system.
- Ask students to explain a concept or answer a question in pairs (think-pair-share).
- Have students work in groups on answering challenging questions, solving problems, interpreting data...
- Pause in class and ask students to catch up on their notes, write a brief summary of an idea, or define terms.

Padlet – for questions

https://uniofyork.padlet.org/mathilde_peron/6a9jwgkuytff

padlet
Mathilde Peron + 2 · 7mo
Questions? Social interactions
Week 4/5

Before, during or after the lectures. Clever questions, stupid questions (probably not that stupid), comments or thoughts... I take them all!
Just add a post!
Posts are anonymous
♡ 0

Strategy Equilibrium
Is the 'Nash equilibrium' just another way of saying the 'dominant strategy equilibrium'? Is there a difference?
♡ 1

Yes there is a slight difference
dominant strategy equilibrium An outcome of a game in which every player plays his or her **dominant strategy**.

Nash equilibrium
A set of strategies, one for each player in the game, such that each player's strategy is a **best response** to the strategies chosen by everyone else.

In the case of a Nash equilibrium, the strategy for each player is *not necessarily a dominant strategy*.
♡ 0

The differences
between
information
processing for
novices and
experts

Padlet – for questions (2.0)

https://uniofyork.padlet.org/mathilde_peron/QArevision

padlet

Mathilde Peron + 3 · 16d

Q&A Revision - Autumn term

- Social interactions**
- Property and Power**
- The Firm and its customers**
 - Anonymous 17d
Price-elasticity and monopolies
Hello Mathilde!

I wondered about the fact that marginal revenue is always negative when the demand is inelastic. However isn't an inelastic demand curve exactly what monopolists are looking for, so that they can raise the price without losing many customers?

1

2 comments
 - Mathilde Peron 17d
That's a good point. First, remember that the elasticity along the demand curve changes. So a demand curve that looks quite inelastic (almost vertical) will still have segments where the marginal revenue is positive. The firm maximises profit by setting a price where Marginal revenue = marginal cost. If the demand is quite inelastic, the profit-maximising price is likely to be high and the quantity produced low. Hence a high mark-up (and a big
- Supply and Demand**
 - Anonymous 19d
Competitive Equilibrium
In the slides it says that competitive equilibrium is Pareto efficient, with three assumptions. Why do we need these assumptions? Cause it seems for me that there is no way to make a Pareto improvement there anyway, any other point would reduce producer/consumer surplus.

Thank you.

1

1 comment
 - Mathilde Peron 19d
Hi, The representation of the equilibrium in slide 12 takes into account these assumptions. We've seen in "The firm and its customers" that when firms are price makers, the price is set above marginal cost and creates a deadweight loss. In the case of incomplete contracts (in the labour market for instance) we are also away from a competitive equilibrium with non voluntary unemployment. Finally, if there are external effects, the market equilibrium is not Pareto efficient (see Market, efficiency and public policy).
- Labour market**
 - 3 comments
 - Mathilde Peron 2mo
Hi. Thanks, good question! Maria's reservation wage is what she receives when she is unemployed. Maria's employment rent is the wage - disutility of effort - reservation wage. In the case of an increase in childcare benefits for workers only, you are right to say that her rent increases. She will now lose more if she is unemployed and therefore is willing to provide more effort for the same hourly wage. This is the 'outcome' of better childcare for workers. The 'mechanism' is the following: the higher rent does not come directly from a higher wage, it comes from a lower reservation wage -> the unemployment benefit is reduced by the opportunity cost of not receiving childcare subsidy. It can also come from a lower disutility of effort: Maria is less tired and more productive now that she can buy more childcare. Does it make sense?
 - Anonymous 2mo
Yes, now with the equation of the employment rent I can see that a reduction in the reservation wage is needed as the opportunity cost increases. Thank you very much! Does the form of the best response curve change too though?
 - Mathilde Peron 2mo
Great. The change in the reservation wage shifts the curve to the left. The shape of the best response curve would change if the childcare subsidy
- Markets, efficiency and public policy**
 - Anonymous 2mo
Question 12.2
I do not understand why the second answer is not correct. I thought the highest amount that the nurses are willing to pay is the total amount of their surplus when the output is reduced to 80. Isn't the surplus the blue shaded area: $((460-360) \times 40)/2 = 2400\$$. However the book says it is 4000\$.

Question 12.2 and figure 12.4 [here](#)

1

2 comments
 - Mathilde Peron 2mo
Hi. Thanks for your question. The maximum amount that nurses are willing to pay to reduce the noise (or reservation option) is the total reduction in costs when the output falls from 120 (market output) to 80 (Pareto efficient output). On the diagram it corresponds to the total area of the shaded shape (pink + green), hence $(80-120) \times 40/2 = \$4000$. (There is a typo in the textbook's answer), \$2400 is the net social gain (gain from noise reduction for the

Padlet – for interactive resources

https://uniofyork.padlet.org/mathilde_peron/EDA_resources

The image shows a screenshot of a Padlet board titled "Economic Data Analysis - Resources" by Mathilde Peron. The board is organized into a grid of 24 pins, each representing a different resource. The pins are arranged in 4 rows and 6 columns. The resources include:

- Review and Overview - Lecture #9**: How to access your MOOC team results. Only available until Friday 15/03.
- Financial markets - Lecture #8**: Explore Yahoo Finance. Obtain, graph and compare 1000+ items: industrial average (type "IND" in the Look Up box), S&P 500 (type "SP500") and FTSE 100 ("FTSE") codes.
- ALFRED and the output gap - Lecture #7**: Meet ALFRED. ALFRED (ALFRED) is a tool that provides real-time economic data.
- Data in developing countries - Lecture #6**: Rising inequality in China. Read the introduction before the lecture. Read 2.1, 2.2.1, 2.2.2 and 4. after the lecture.
- National Income Accounting - Lecture #5**: The Maddison project. Maddison Historical Statistics (Maddison) - The Maddison Project has been updated.
- Income inequality - Lecture #4**: Where do you fit in? Headlines of Income and Inequality: where do you fit in? Headlines of income and inequality: individual, regional, national, global.
- Exploring Economic Data - Lecture #3**: Health and wealth: 200 countries over 200 years in 4 minutes. How: Saving. Have you got 200 Countries, 200 Year... by BBC.
- Finding Economic Data - Lecture #2**: Why Economic needs facts. Thomas Piketty and James Hoxby. Piketty and Hoxby: Why economics... by BBC.
- Introducing Economic Data - Lecture #1**: Counting the rough sleepers. It's not 30000. Mark in Lines, Behind the Scenes - The... Counting your favourite 300,000 sleep...
- Slides Lecture 7 (pdf)**
- Slides Lecture 8 (pdf)**
- Slides Lecture 9 (pdf)**
- Slides Lecture 1 (pdf)**: Introducing Economic Data.
- Slides Lecture 2 (pdf)**: Finding Economic Data.
- Slides Lecture 3 (pdf)**: Exploring Economic Data.
- Slides Lecture 4 (pdf)**: Exploring Income and Inequality.
- Slides Lecture 5 (pdf)**: Exploring Income and Inequality.
- Slides Lecture 6 (pdf)**: Exploring Income and Inequality.
- Slides Lecture 10 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 11 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 12 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 13 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 14 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 15 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 16 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 17 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 18 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 19 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 20 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 21 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 22 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 23 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.
- Slides Lecture 24 (pdf)**: China's GDP growth may be understated. Read: Introduction - Data - Card case.

Thanks!

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Some useful links and references

- Soon, L (2018), [Building capacities to help students learn](#)
- Hodges & Narum (2015) – Teaching undergraduate science: a guide to overcoming obstacles of student learning. See Chap 2 Helping students learn during class.
- Talbert, R (2012) – [Four things lecture is good for](#)
- Brown, P. C., Roediger (III), H. L. & McDaniel, M. A. (2014). *Make It Stick*. USA: Harvard University Press.
- CORE – [The Economy](#)
- [Turning point: Responseware](#)
- [Padlets](#)
- [QR codes](#)