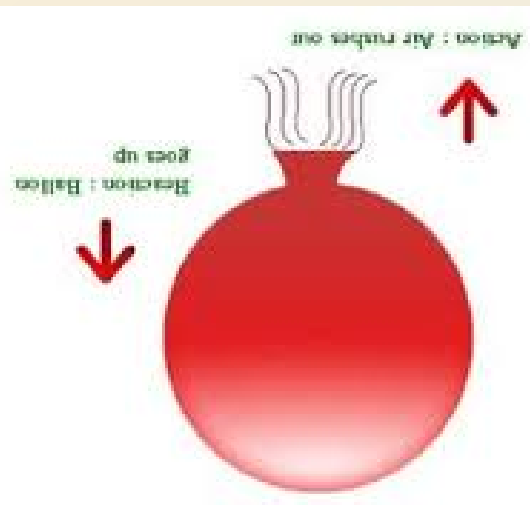


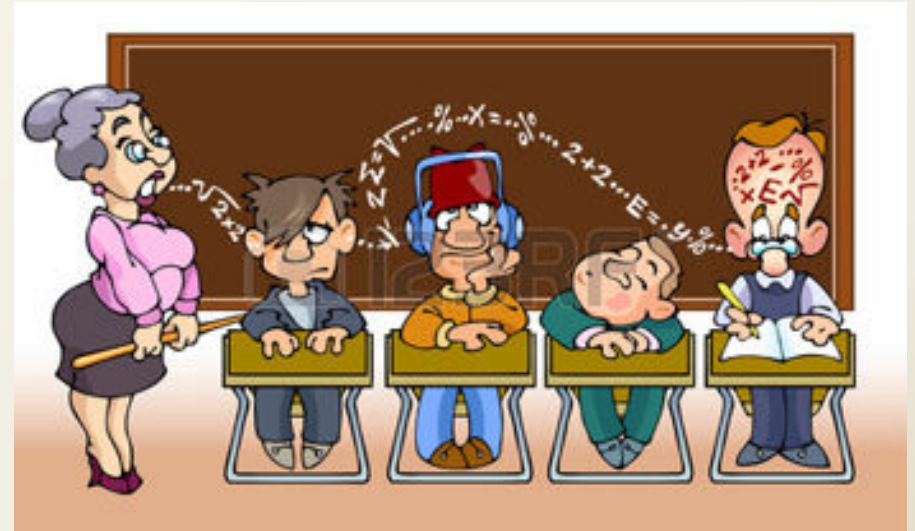
OŠ Savsko naselje

THE LAW OF ACTION, REACTION, AND FLIPPED LEARNING



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mathematics and physics teacher

Why flipped learning?



Pupils are active while learning: they are looking for knowledge, they organize their own learning time, they can work in groups or by themselves, and they can search for additional sources if they wish.

Flipping the Classroom

Pupils from two eighth grade classes discussed the same topic in two different ways:

**8A : flipped learning
methodology**



**8B: regular
classroom teaching**

After the lesson I gave a written assignment on the topic discussed to pupils in both classes.

OČNI LIST – vzajemno učinkovanje sil

1. Po zakonu o vzajemnem delovanju sil, dopolni stavek.

Koza vleče vrv in vrv



2. Zemlja privlači Luno. Obkroži **pravilni odgovor**.

- A Luna privlači Zemljo z manjšo silo, kot Zemlja Luno.
- B Luna privlači Zemljo z večjo silo, kot Zemlja Luno.
- C Luna privlači Zemljo z enako silo, kot Zemlja Luno.

3. Pri spodnjih primerih poišči par teles, ki po zakonu o vzajemnem učinku delujeta drug na drugega.

- A S stropa visi luč.
- B Kovček stoji na tekočem traku.
- C Jure vleče sani, tako da se gibljejo enakomerno.

Dodaj še svoj primer vzajemnega delovanja sil:

4. Poimenuj in nariši sili, ki po zakonu o vzajemnem učinku delujeta v primeru ko kokos visi na veji.



5. Tona z veslom odriva vodo nazaj. Zakaj se čoln pri tem premika naprej? **Razloži**.



6. Teža rokoborca, ki stoji na zmagovalnih stopničkih je 1500N. S koliko silo delujejo zmagovalne stopničke na rokoborca?

7. Masa knjige, ki leži na mizi je 500g. Zapiši in v merilu nariši par vzajemnih sil, ki delujejo v tem primeru.

Merilo: 1cm = 5N



8. Žoga se odbije od stene. Zapiši par vzajemnih sil, ki delujejo na žogo in steno. Zakaj se stena pri delovanju žoge na steno ne premakne?

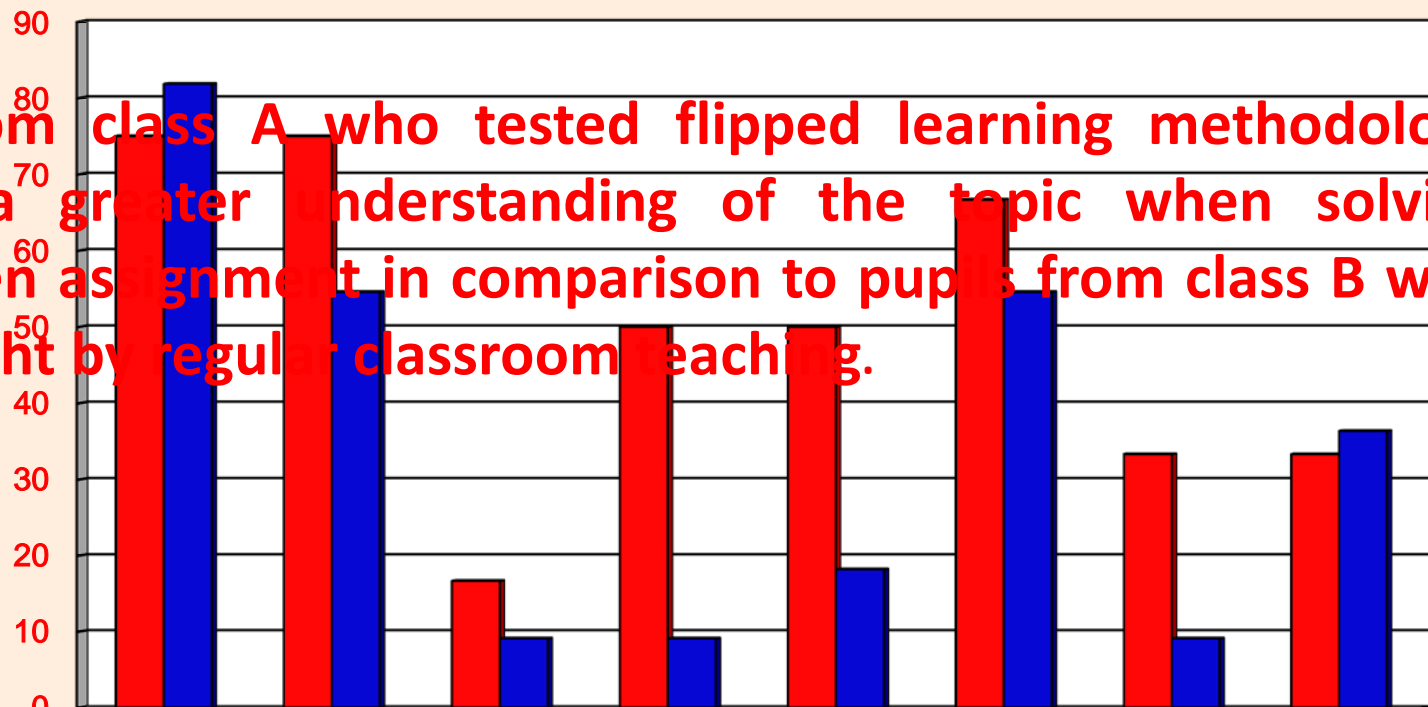
I examined the results which are shown in the following graph:

8A: flipped learning methodology.

8B: regular classroom teaching.

by written assignment

Pupils from class A who tested flipped learning methodology showed a greater understanding of the topic when solving the written assignment in comparison to pupils from class B who were taught by regular classroom teaching.



■ A rclass (%)
■ B class (%)

1.assig n.

2.assig n.

3.assig n.

4.assig n.

5.assig n.

6.assig n.

7.assig n.

8.assig n.

75

75

17

50

50

67

33

33

82

55

9

9

18

55

9

36

Afterwards I asked the pupils to complete a questionnaire.

SHORT QUESTIONNAIRE ABOUT FLIPPED LARNING

A short while ago, some of you had a chance to test flipped learning methodology: during our classroom, you solved exercises on the topic that you previously viewed online. I would like to analyse your impressions, therefore I am asking you to answer the questions below. The questionnaire is anonymous.

GRADE: _____ **CLASS:** _____ **TOPIC:** _____

1. I was learning a new topic (circle):

A As a flipped learning online.

B Regular physics lesson.

2. I found the lesson (circle):

A very interesting

B interesting.

C uninteresting.

3. If you learnt the new topic with flipped learning: How many times did you replay the video recording (circle)?

A Never.

B Once.

C Twice.

D Three or more times.

4. Would you prefer flipped learning more often during the school year (circle)?

A yes

B no.

C I don't know.

5. Evaluate your understanding of the topic you were learning : (circle)

A I understand it very well.

B I understand it.

C I need additional explanation.

6. Your thoughts and notes: _____

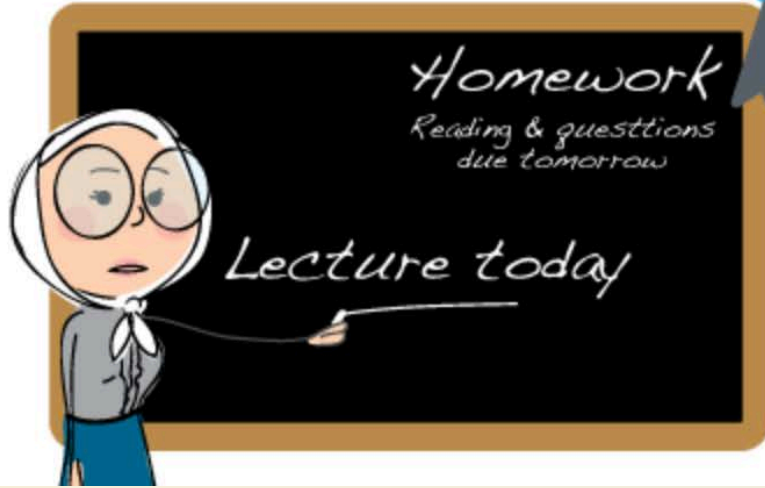
Questionnaire results are presented in following table:

Questions:		8A flipped learning	8B Classical teaching
2. I find the course	A very interesting	6	2
	B interesting	6	8
	C uninteresting	0	1
3. How many times did you replay the video recording?	A never	0	/
	B once	6	/
	C twice	5	/
	D three or more	1	/
4. Would you prefer flipped learning more often ?	A yes	7	4
	B no	1	0
	C I don't know	4	7
5. Evaluate your understanding of the topic you were learning	A very well	6	2
	B well	5	2
	C I need more explanation	1	7
6.		6 comments	1 comment

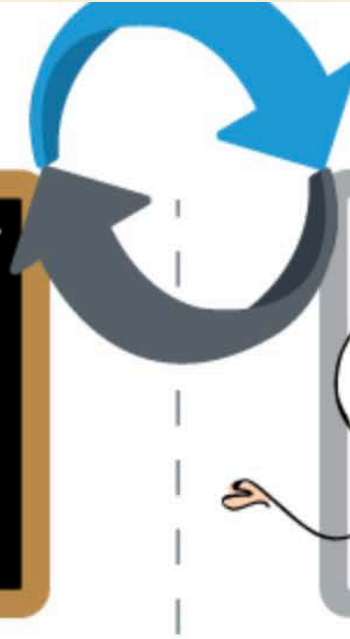
Most of the pupils liked the flipped learning methodology and would like to practice it more often.

Conclusion:

The Traditional Classroom
Teacher's Role: Sage on the stage



The Flipped Classroom
Teacher's Role: Guide on the side



flipped learning:
with
a lot of
success
you
wish
and I
attention
for your
Thank you

Online picture titles in order:

https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcTzl7CVEdgGDPUnlUKgp8dEkADctFlhwkqzqraXwSuYYHBmF_BDQw

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https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcSx4t8am1pjQG90uAeWE2WJpUeqYX-KNs3_wDTU8VdiH8A-VKPYfQ

<http://ii.library.jhu.edu/files/2013/08/flippingtheclassroom.png>

<http://jamiedavies.co/wp-content/uploads/2014/02/Screen-Shot-2014-02-26-at-17.26.40.png>