

June 3 2007

*Teaching and Learning in a
Macroeconomics Course with
Laptops: The Students' Perspective
2002-2007*

thinktank2007montréal

Outline

- Introduction
- HEC Montréal
- Studio Method at RPI ...
- ... in a third-year macroeconomics course
- Survey results 2002-2007
- Conclusion

Contribution

- Students feedback over a six-year period
- ... To give a better perspective for colleagues and administrators

HEC Montreal

- HEC Montréal is a large business school part of the University of Montreal campus
- 225+ full time faculty
- 10 000 full-time and part-time students
- First laptop initiative at the undergraduate BBA in 1998
- 3-year program
- Most of our students commute - do not live on campus

Studio Method at Rensselaer Polytechnic Institute (RPI)

- Serious questions on the effectiveness of the traditional lecture format (large lecture hall + recitation + labs)
- Developpement of a more hands-on and engaging learning environment
- Studio physics (studio calculus, studio engineering, studio biology, etc.)
- Scenario based (script based)
- **Laptops are great facilitators!**

Studio in Macroeconomics

- Third-year course required for economics majors but elective for finance students
- First try in the 2001 Winter term .. repeated till 2007
- 25-30 students
- U-shape classroom (like this one)
- At 8h30 in the morning!

Studio in macroeconomics

Learning objectives

- to understand the modeling process in economics
- to solve graphically, analytically and numerically (using Excel) well-known macroeconomic models
- to assess using linear regression or graphical methods the ability of the various models to explain the data

Studio in macroeconomics

- 13 3-hour meetings during the semester
- Development of a series of 11 assignments built around stylized facts
- ... to replace the lectures!
- Students have some working knowledge of Excel
- Assignments improved over the years

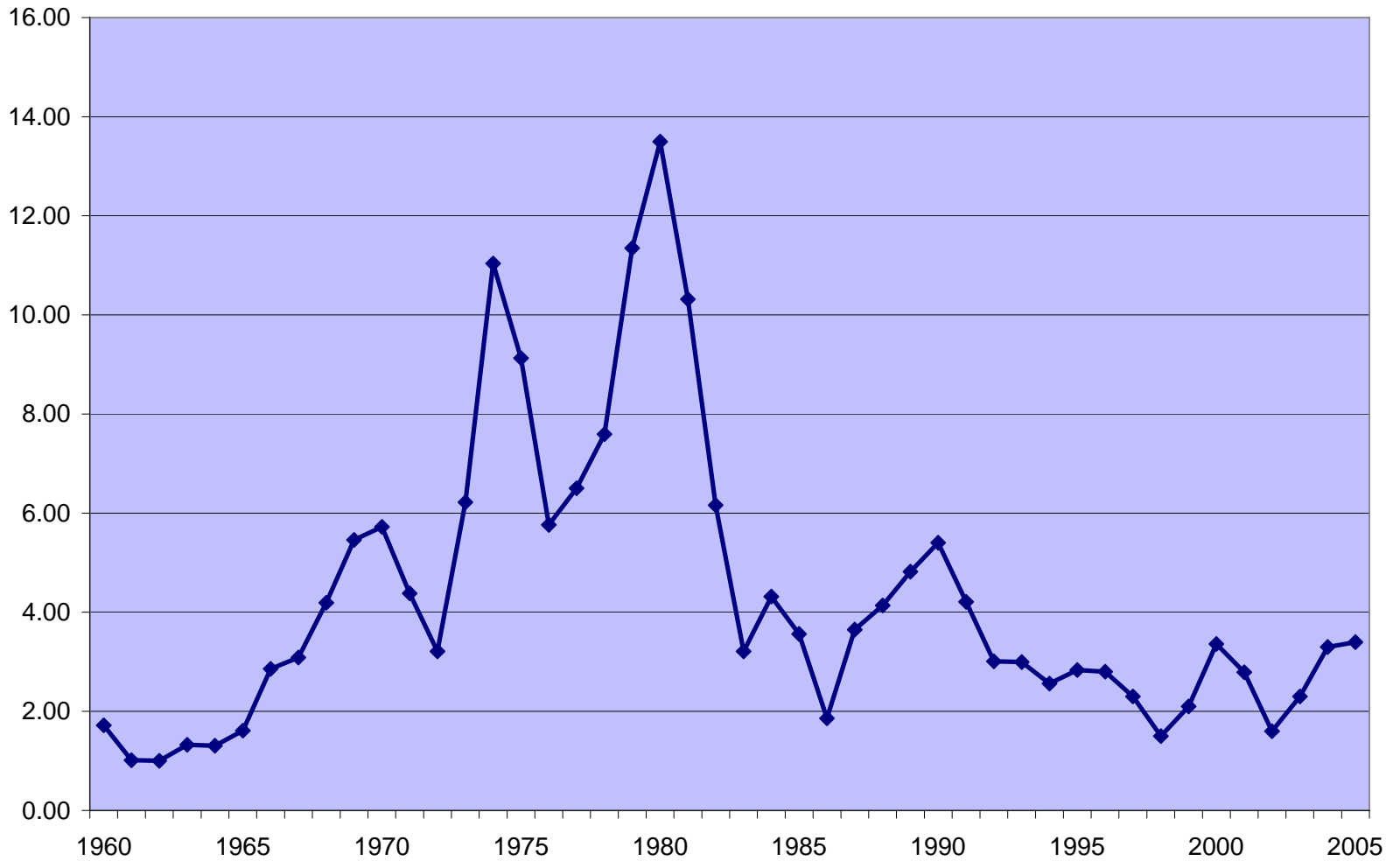
Studio in macroeconomics

1. Prior reading of the textbook
2. For key chapters, a short quiz is given
3. Mini-lecture on the topic of the day (10-15 minutes)
4. Team-assignment answered by building an Excel file
5. Round-up of the assignment usually done by a team

Studio in macroeconomics

- The assignments are distributed on paper
- Students have to send their Excel file at the end of the class
- All assignments are graded
- Mid-term and final exam are done using the laptop
- The assignments highlight key concepts to initiate meaningful learning conversations

U.S. inflation rate



Jacques
Raynauld

HEC Montréal

11

Model

$$R = \pi + \beta \text{GAP} + \delta(\pi - \pi^*) + R^f$$

$$\pi = f \text{GAP}_{-1} + d\pi_{-1} + Z$$

GAP =			T	R	PC	GAP	Z	R-PC	PC*	Rf
Sigma	0.3	0	10.00	8.00	0.00	0.00	2.00	8.00	2.0	
Beta	0.5	1	10.15	8.00	-0.50	0.00	2.15	4.00	2.0	
Delta	0.1	2	9.63	7.50	-0.44	0.00	2.13	4.00	2.0	
f	1	3	9.18	7.06	-0.38	0.00	2.11	4.00	2.0	
d	1	4	8.78	6.68	-0.33	0.00	2.10	4.00	2.0	
g	0.125	5	8.43	6.34	-0.29	0.00	2.09	4.00	2.0	
p	1.25	6	8.13	6.05	-0.26	0.00	2.08	4.00	2.0	
		7	7.86	5.80	-0.22	0.00	2.07	4.00	2.0	
R*	2.00	8	7.63	5.57	-0.20	0.00	2.06	4.00	2.0	
		9	7.43	5.37	-0.17	0.00	2.05	4.00	2.0	

D. Réinitialiser le chiffrier de la façon suivante en supposant que $\pi^*=8\%$ pour toutes les périodes ($t=1,2,\dots$).

T	R	PC	GAP	Z	R-PC	PC*	Rf
0	10.0	8.0	0.0	0.0	2.0	8.0	2.0

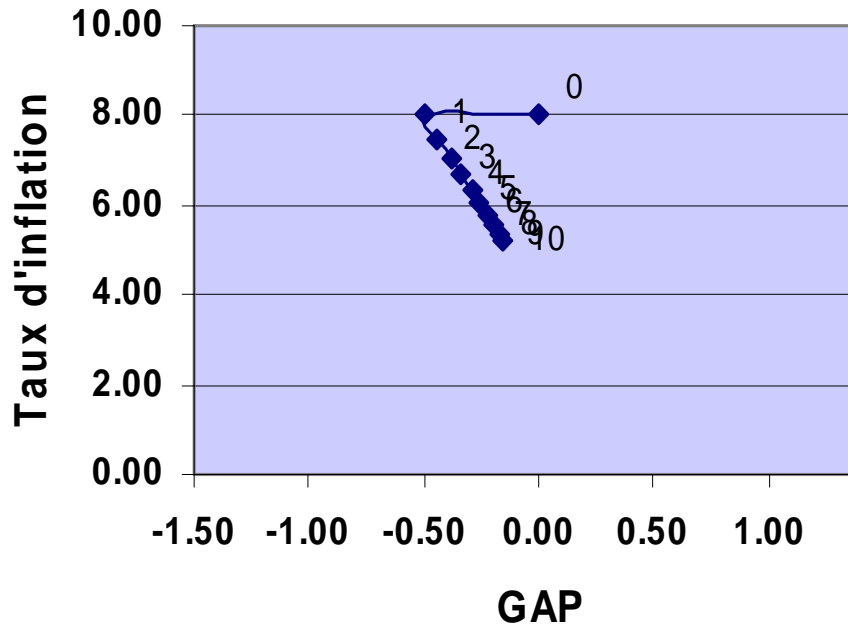
La FED veut réduire le taux d'inflation qui est trop élevé et envisage deux approches: i. l'approche graduelle où π^* sera abaissé progressivement ou ii. l'approche «douche écossaise» en anglais *Cold Turkey* où π^* sera abaissé de façon agressive. Comparez l'effet des deux scénarios ci-dessous

T	π^* (Graduel)	π^* (Douche!)
1	7%	4%
2	6%	4%
3	5%	4%
4	4%	4%
5	4%	4%

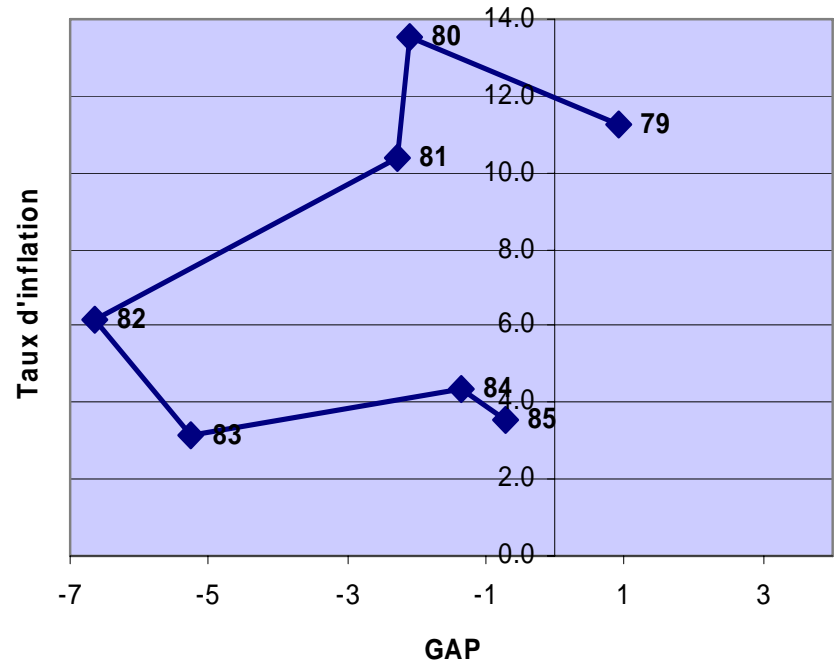
- à court terme sur R, π , GAP et R- π
- à long terme sur R, π , GAP et R- π .

	T	R	PC	GAP	Z	R-PC	PC*	Rf	
Sigma	0.3	0	10.00	8.00	0.00	0.00	2.00	8.00	2.0
Beta	0.5	1	10.15	8.00	-0.50	0.00	2.15	4.00	2.0
Delta	0.1	2	9.63	7.50	-0.44	0.00	2.13	4.00	2.0
					-0.38	0.00	2.11	4.00	2.0
					-0.33	0.00	2.10	4.00	2.0

Graphiques 16.4-16.7



Désinflation de 1980



Classroom observations

- Very positive and «fun» class atmosphere
- Most of the students have done their reading and are working very hard
- Team work and collaboration
- Numerous students-instructor interactions
- Lots of very good questions ... and conversations

Tentative assessment

- No formal assessment was conducted
- Indirect measures related to the Chickering and Ehrmann principles

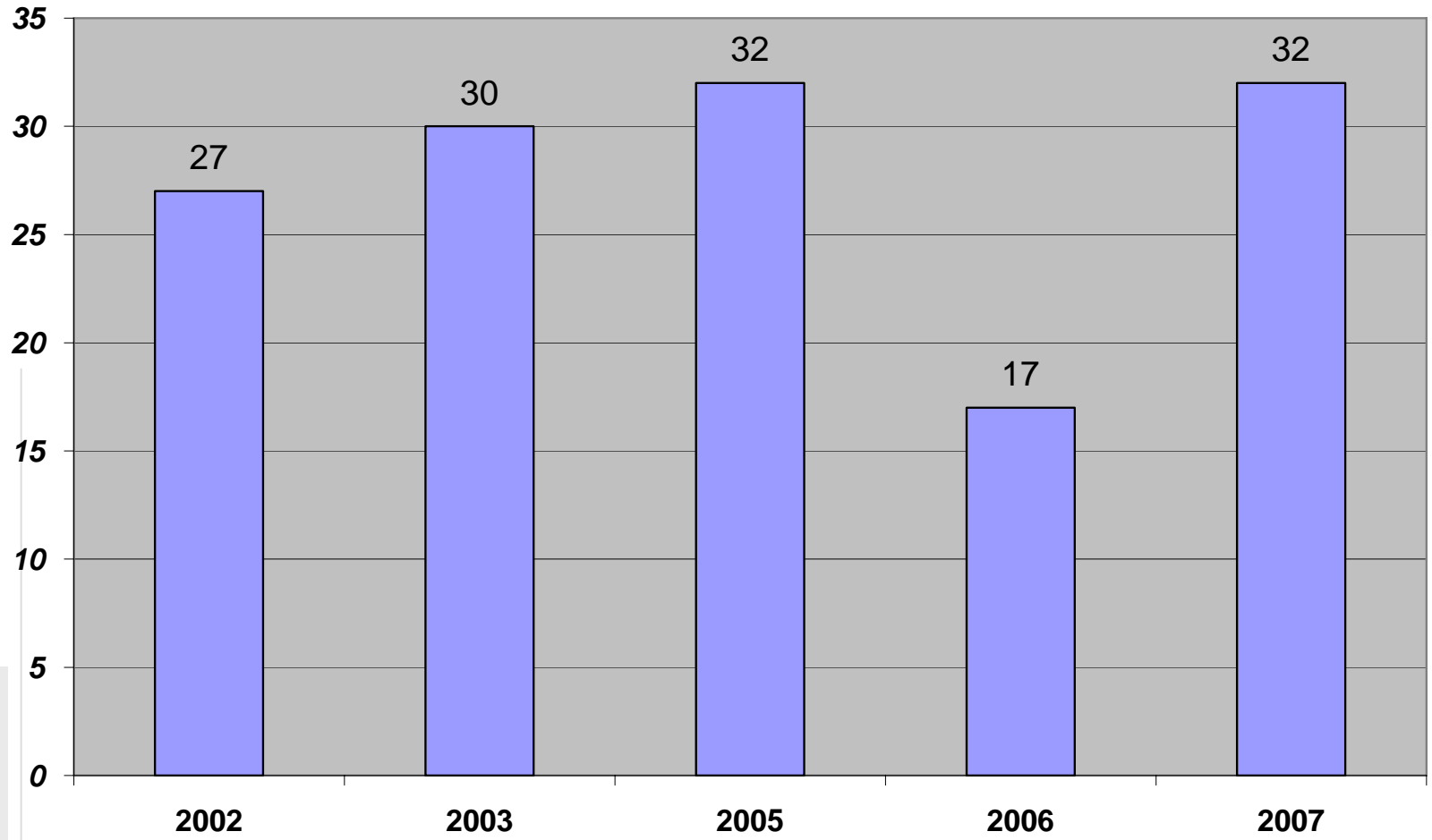
Good practice

1. ...encourages contact between students and faculty
2. ... develops cooperation among students
3. ... uses active learning
4. ...gives prompt feedback
5. ... emphasizes time on task
6. ... communicates high expectations
7. ... respects diverse talents and ways of learning

Exit survey

- 2002-2007 except 2004 (?)

Class size

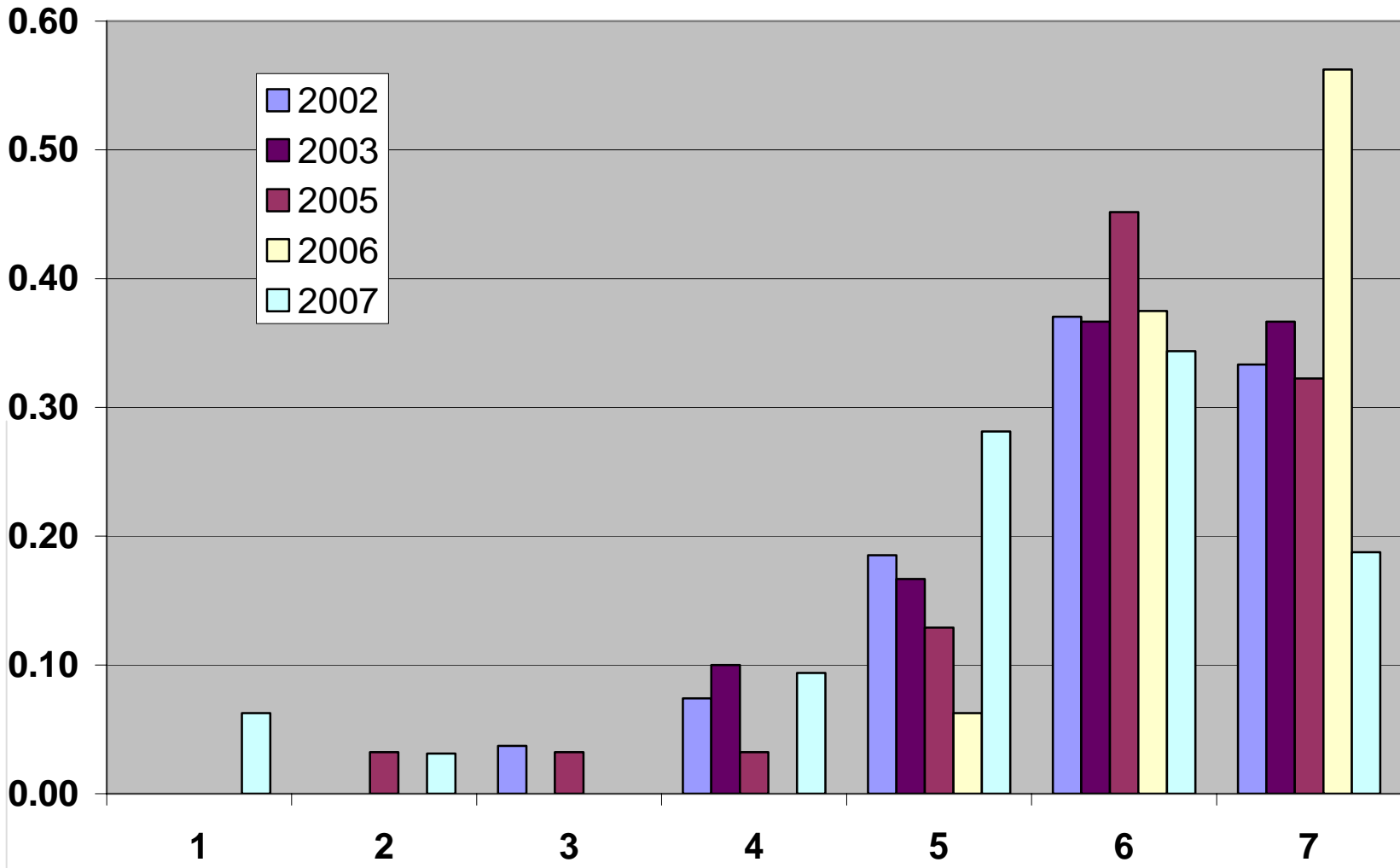


Jacques
Raynauld

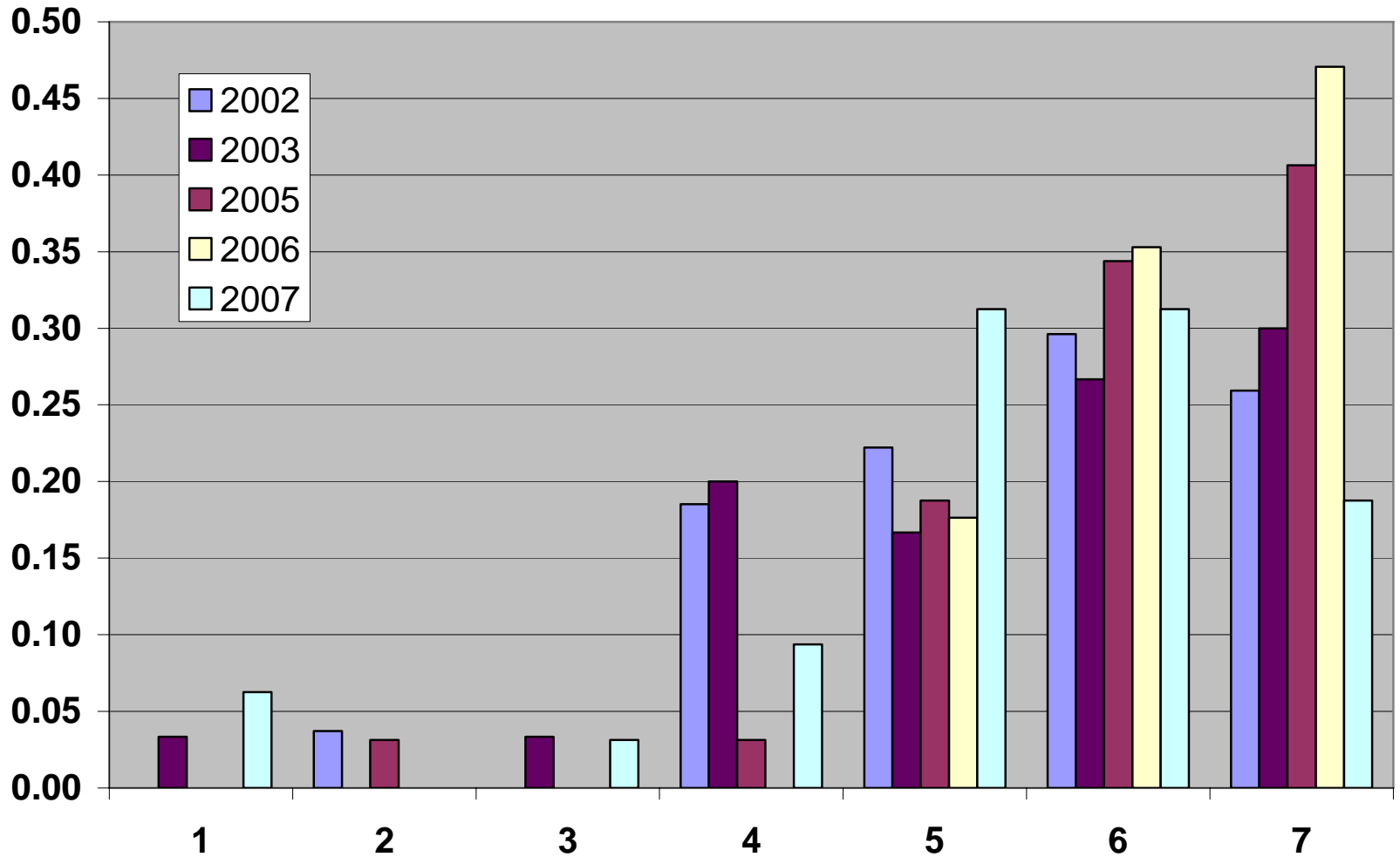
HEC Montréal

19

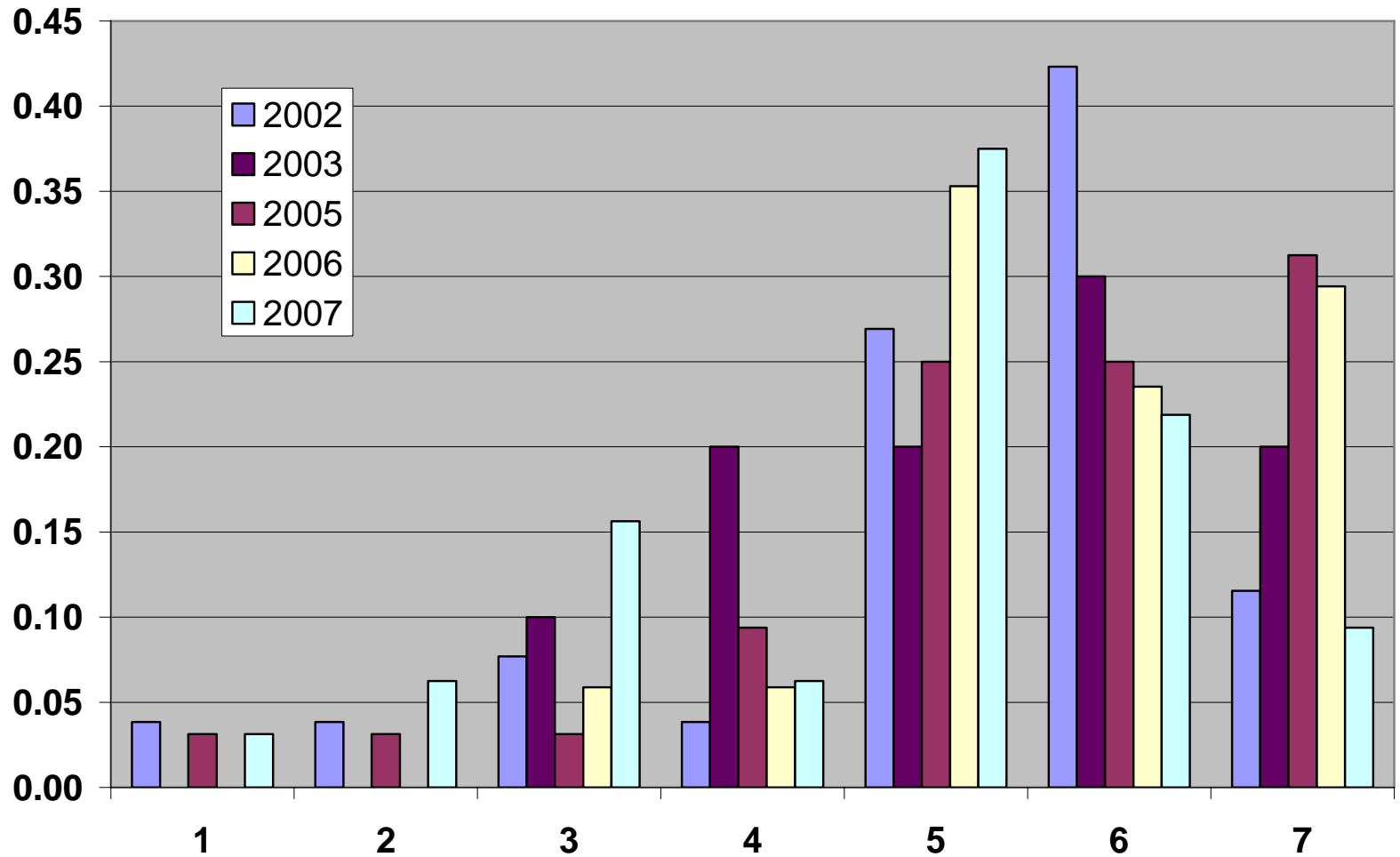
1 - Approach well adapted to the course's objectives?



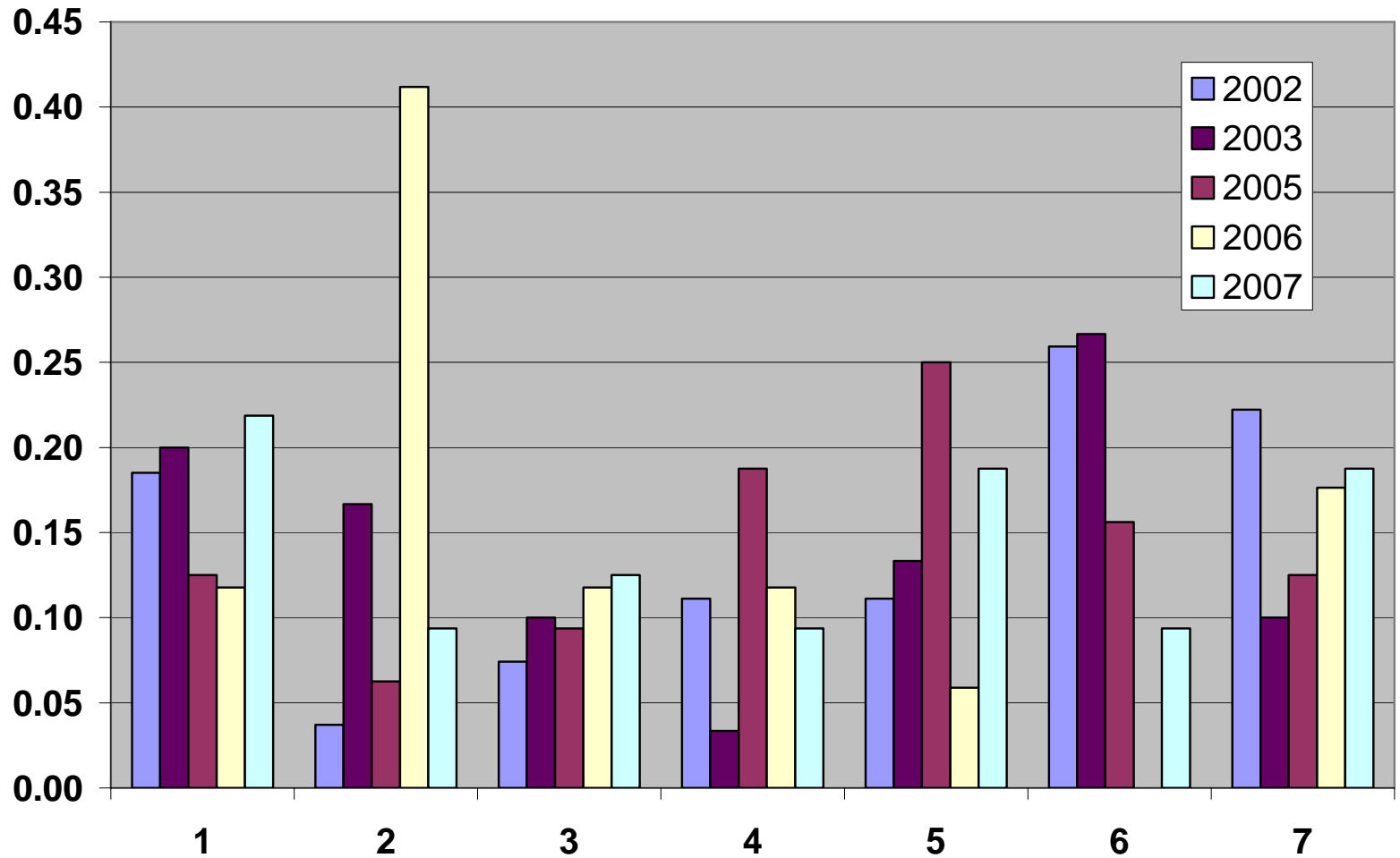
2- Class assignments foster a better understanding?



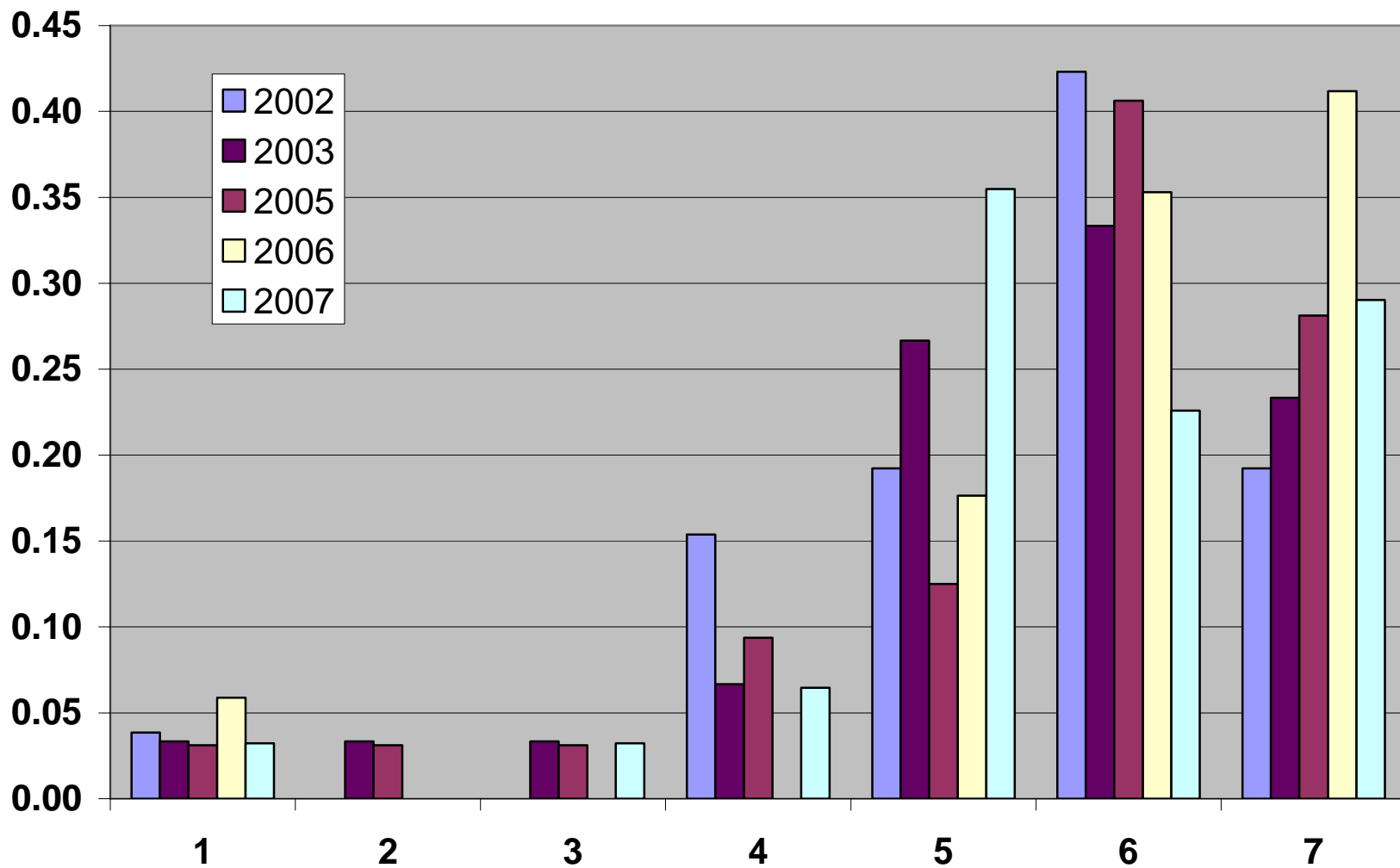
3- Class assignments give a good feedback on what I understand and what I doesn't understand?



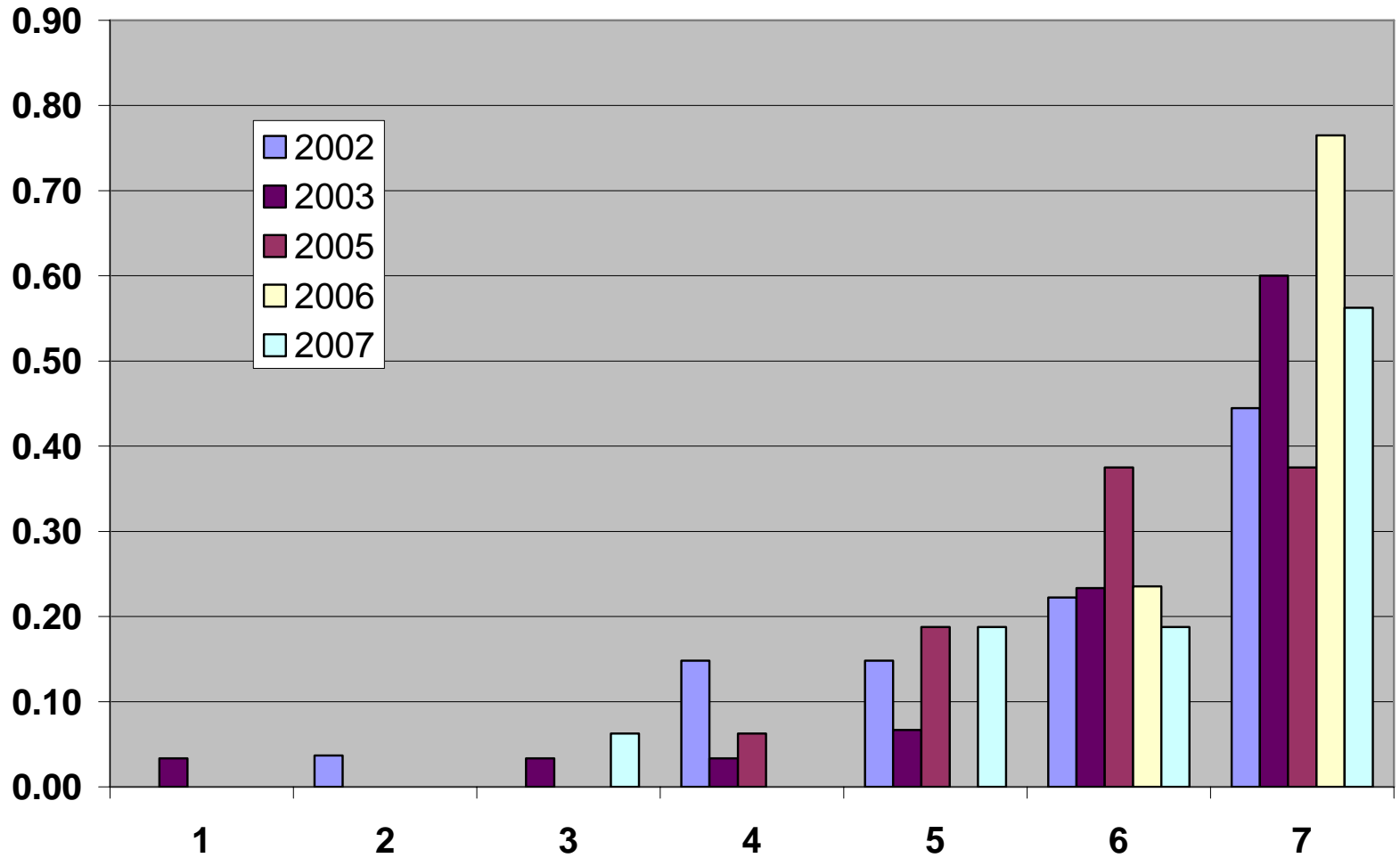
4- Doing the class assignments can be stressful?



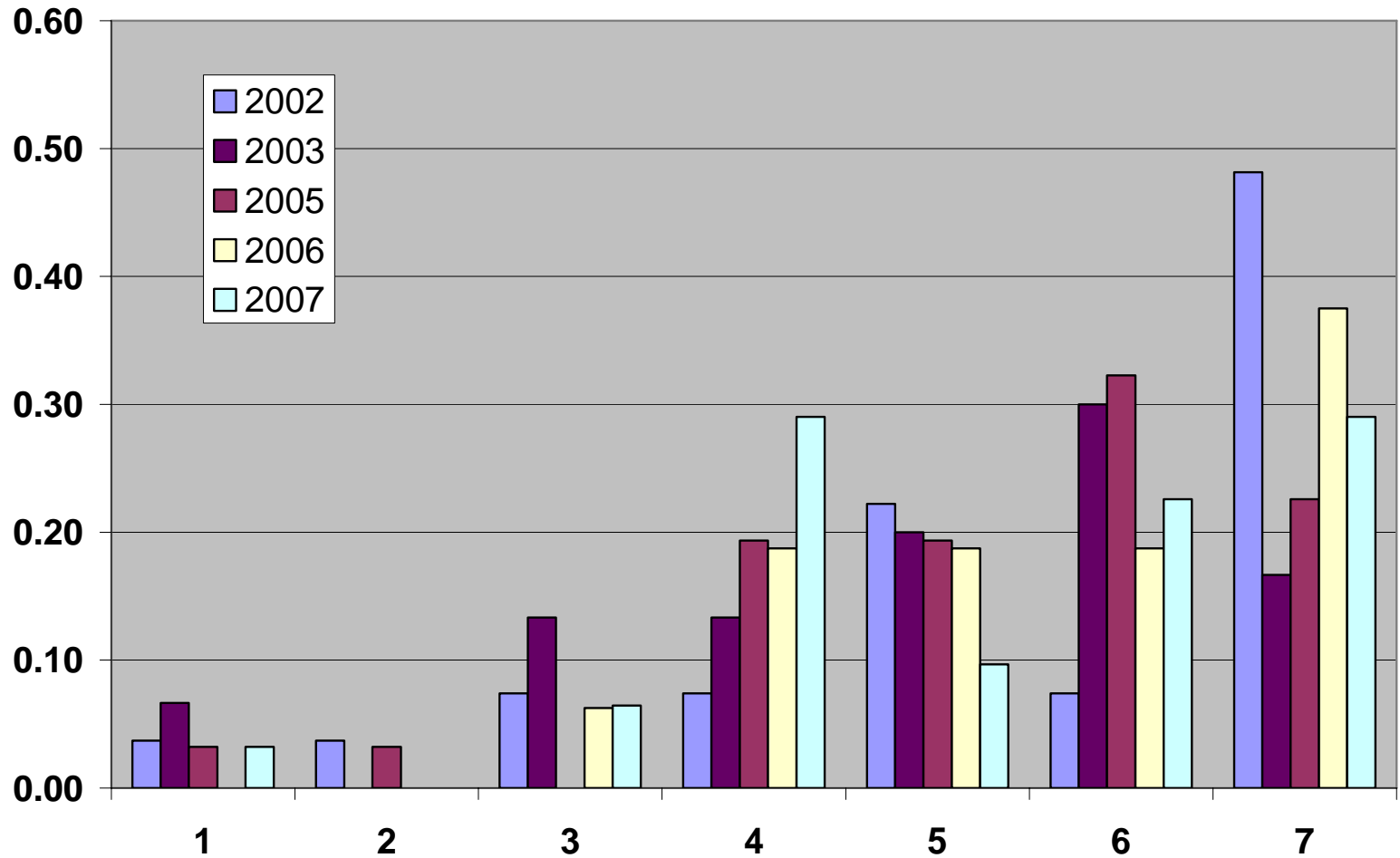
6 - Team work foster a better understanding?



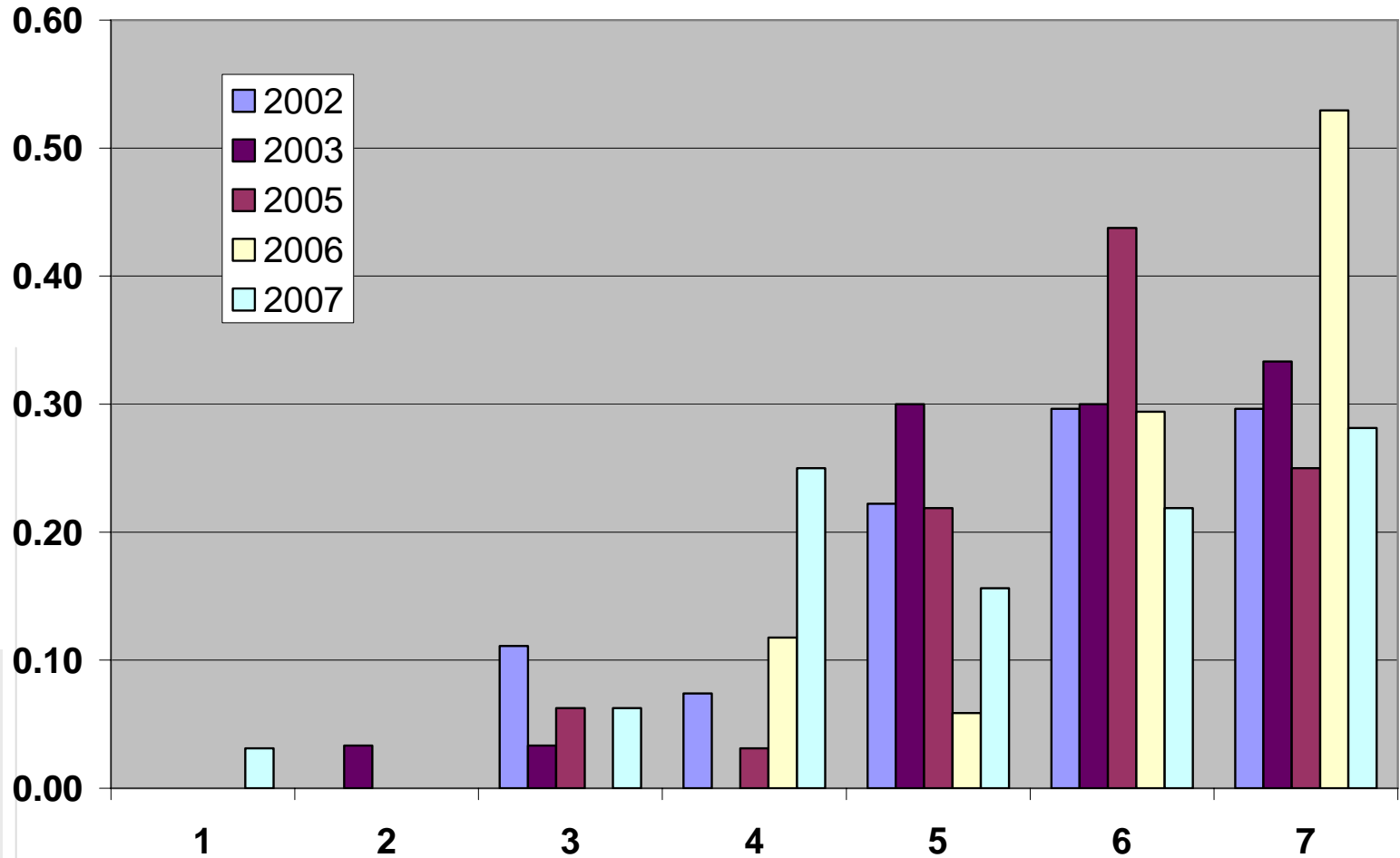
7- Discussions with the instructor foster a better understanding?



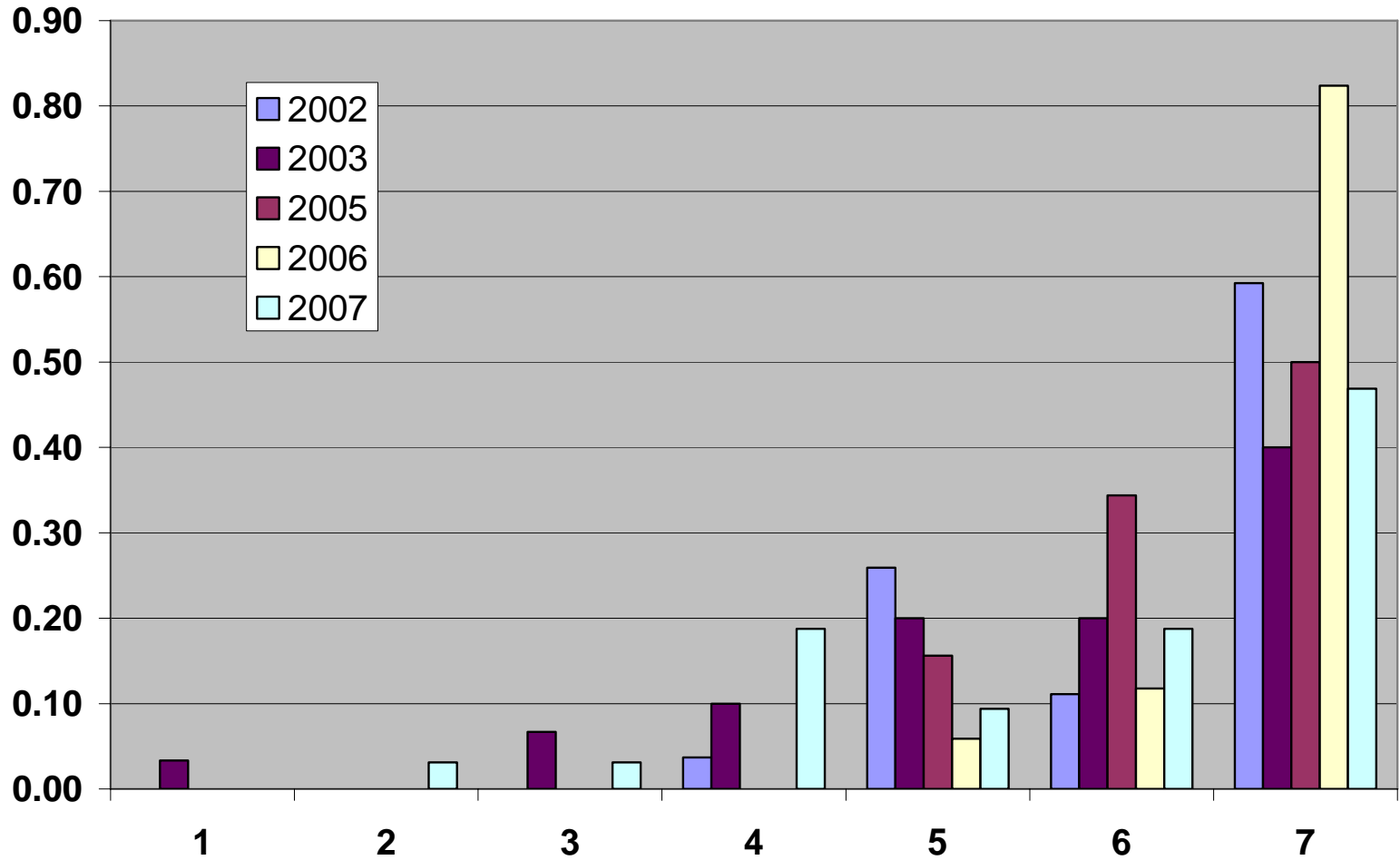
9 - Reading the assigned chapters before the class was important to do the class assignments?



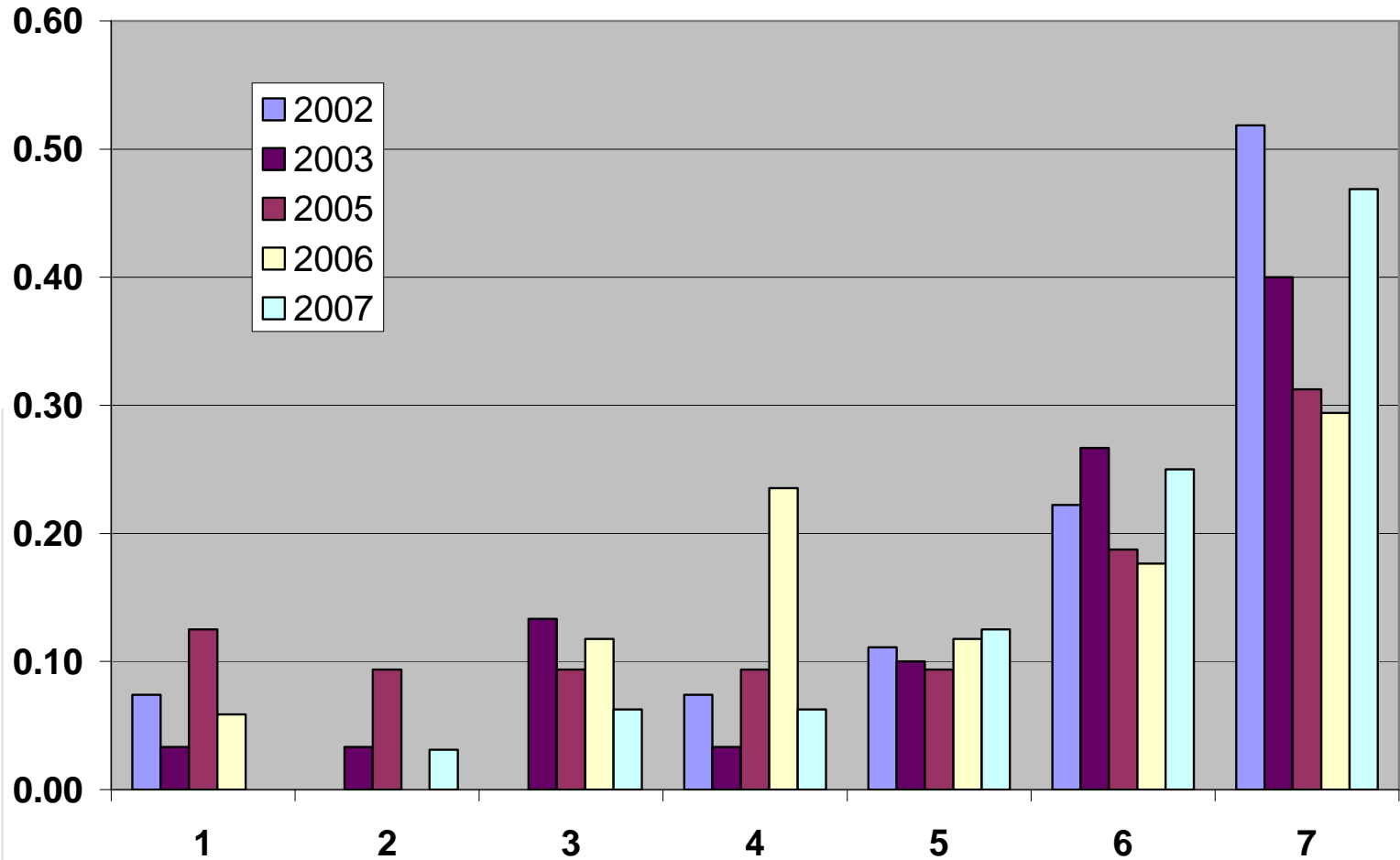
11 - The studio method fosters more autonomous learning?



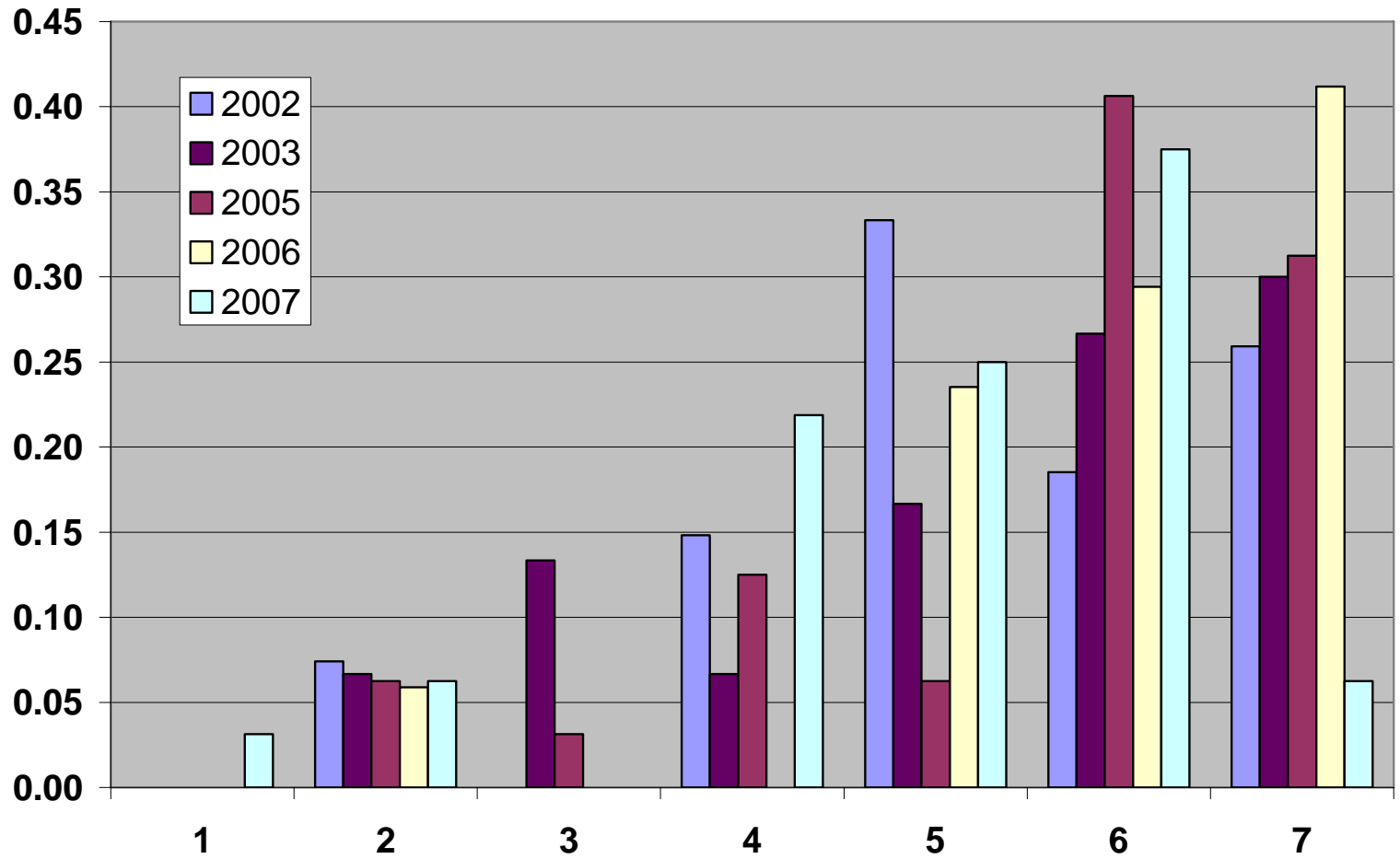
12 - The studio method uses the laptop in some interesting way?



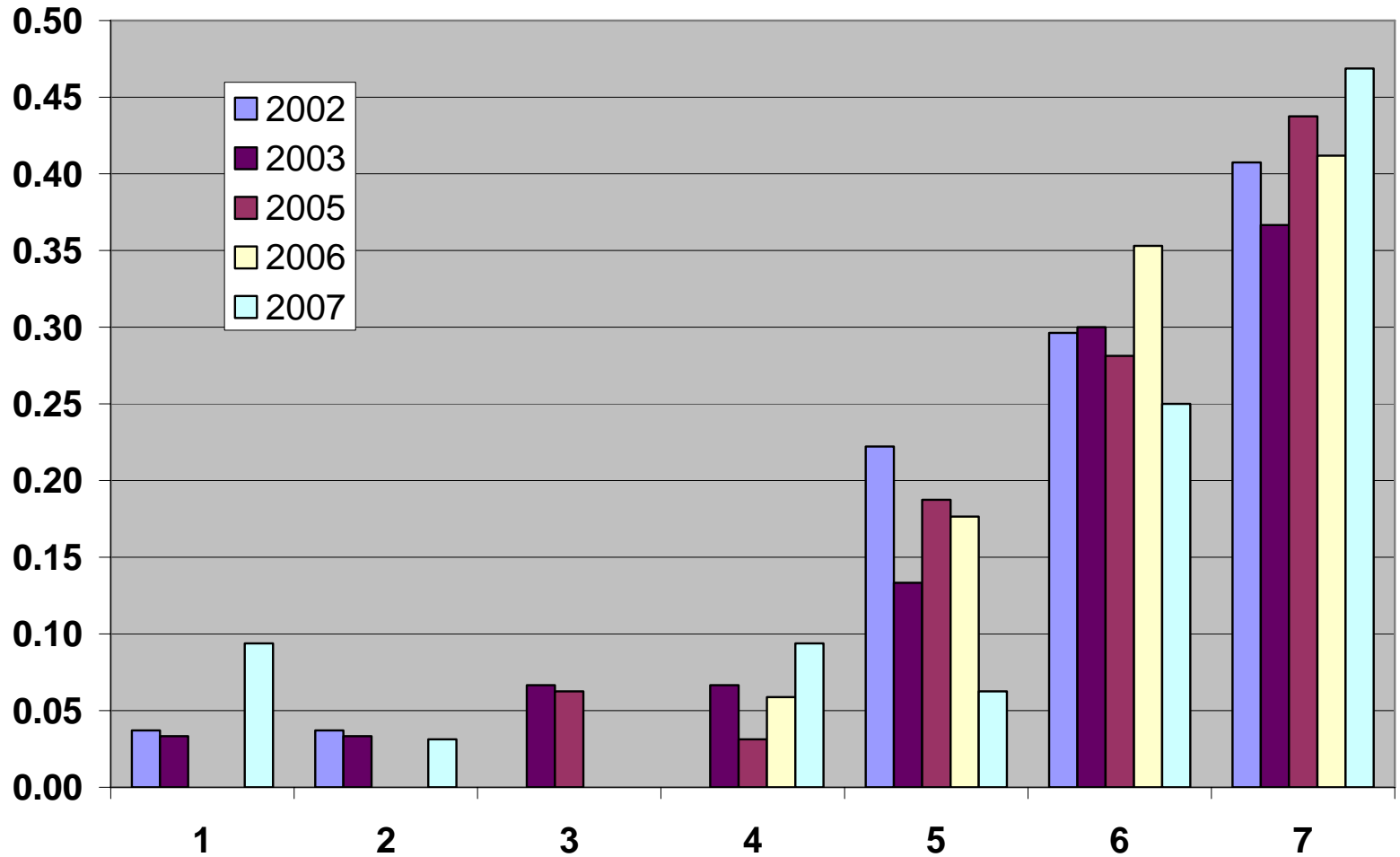
13 - Overall, the studio method is more demanding than other courses?



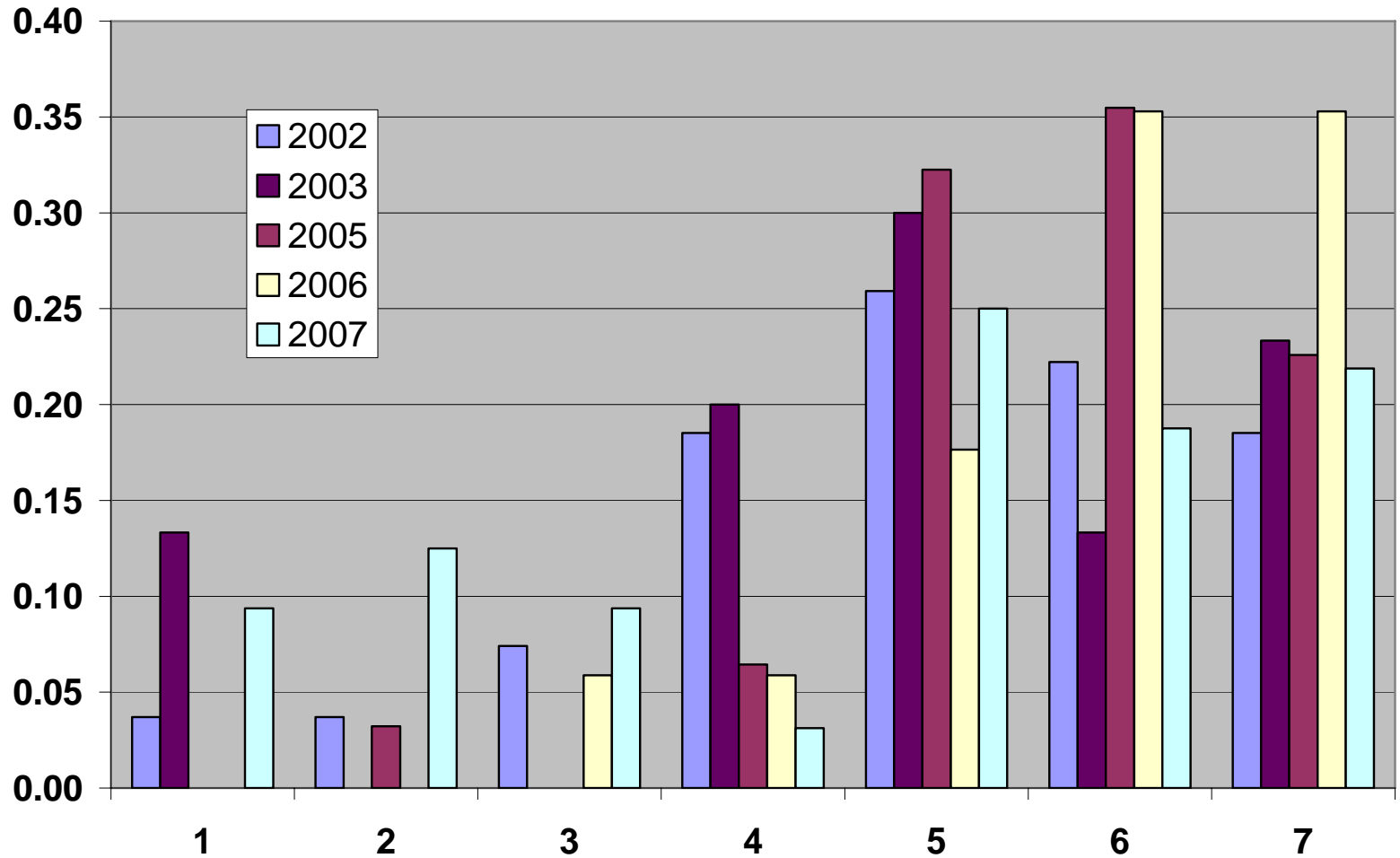
14 - The studio method fosters more lasting learning?



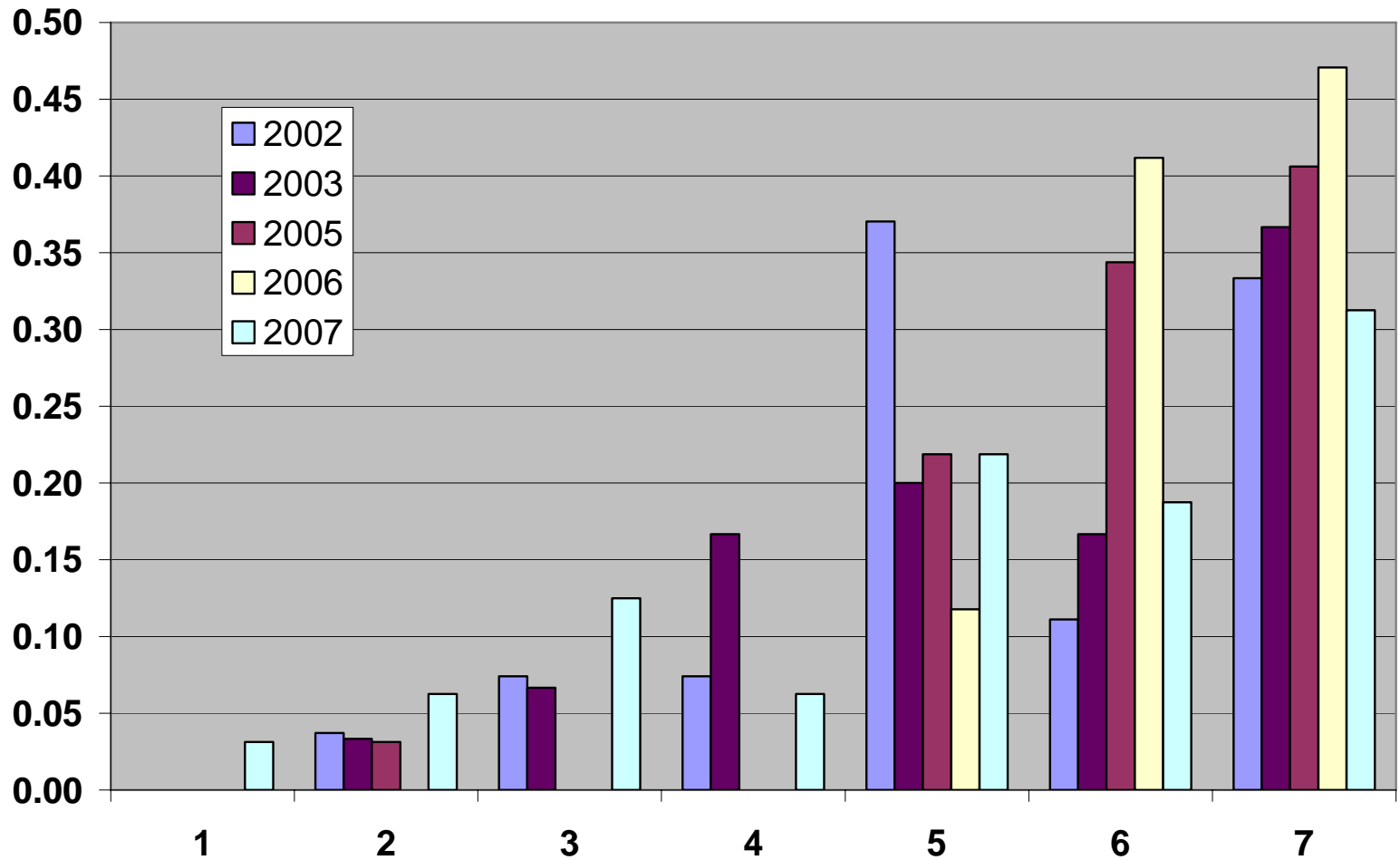
16 - Doing the assignments every week keeps me "current" in my learning?



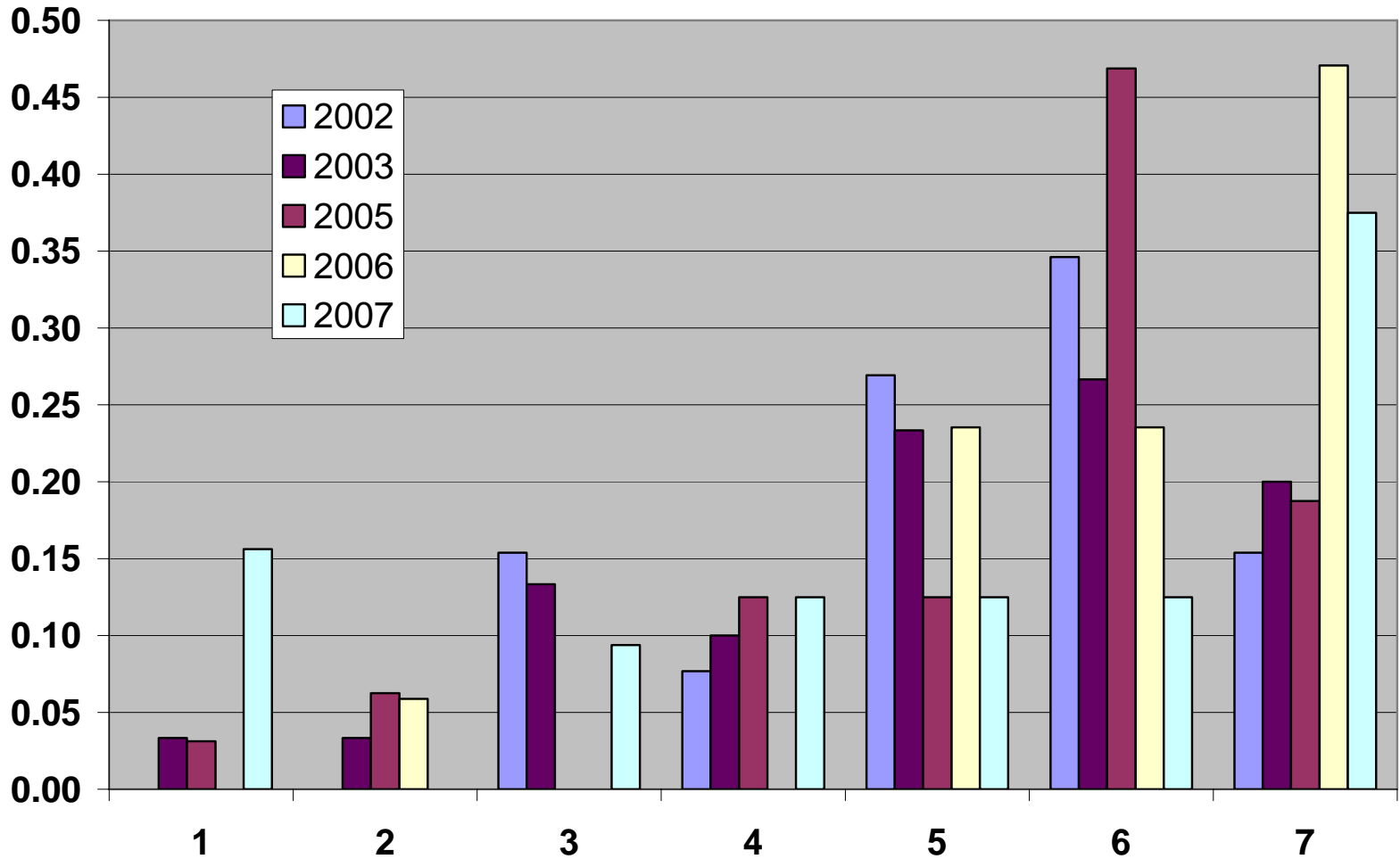
17 - Doing the class assignments had a positive impact on my motivation to learn the course material?



18 - Overall, the studio method is a pedagogical approach that "adds value" to the course?



19 - The studio method could be used successfully in other courses?



Tentative assesment

- Importance of doing long term assesment
- Some want «their» lectures back!

Conclusion

- Meaningful students-instructor conversations (individualized learning)
- Time on task!
- Less material covered ... but in a much deeper way
- The method does not suit some students (different learning styles)
- Learning does not depend as much on the presentation skills of the instructor

Questions

- www.hec.ca/chaireteag
- jacques.raynauld@hec.ca