

the transformation of Physics 315

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setting context

Provided with the opportunity to teach the same course for a second consecutive year, the instructor was keen on improving upon his past performance.

While his best effort was put forth the first time, an improved effort was desired the second time; he wanted his students to learn more and better. To help achieve this goal, the instructor worked with an STLF.

- ★ support implementation of certain teaching techniques
- ★ objective classroom observations
- ★ formative assessments of instruction
- ★ qualitative and quantitative measures of progress

the course

Phys 315, The Physics of Materials, is an elective course. Its general aim is to give students a broad overview of different material classes and a physical intuition of how materials behave, with little emphasis on formal derivations.

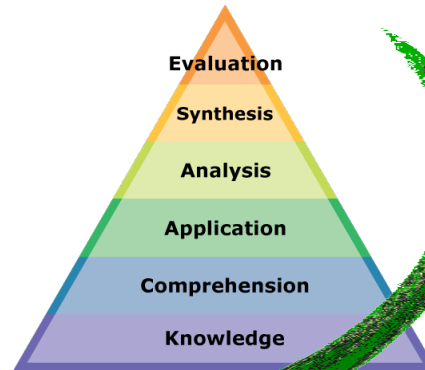
Its prerequisites are ONE of *Phys 203*, *Phys 313*, *Chem 201*, *Chem 206*; its corequisite is *Math 215*.

the students

A rather heterogeneous population of ~20 students enroll in this course each offering. Most are 3rd or 4th year *Physics* students; a few are *Chemists*, *Engineers*, or are general science students.

the changes

189 learning goals
4 at Bloom's level 6
2 at Bloom's level 5
25 at Bloom's level 4
17 at Bloom's level 3
66 at Bloom's level 2
75 at Bloom's level 1



clicker questions



group activities



pre-readings



weekly observations



weekly planning/de-briefing meetings



lecture video taping

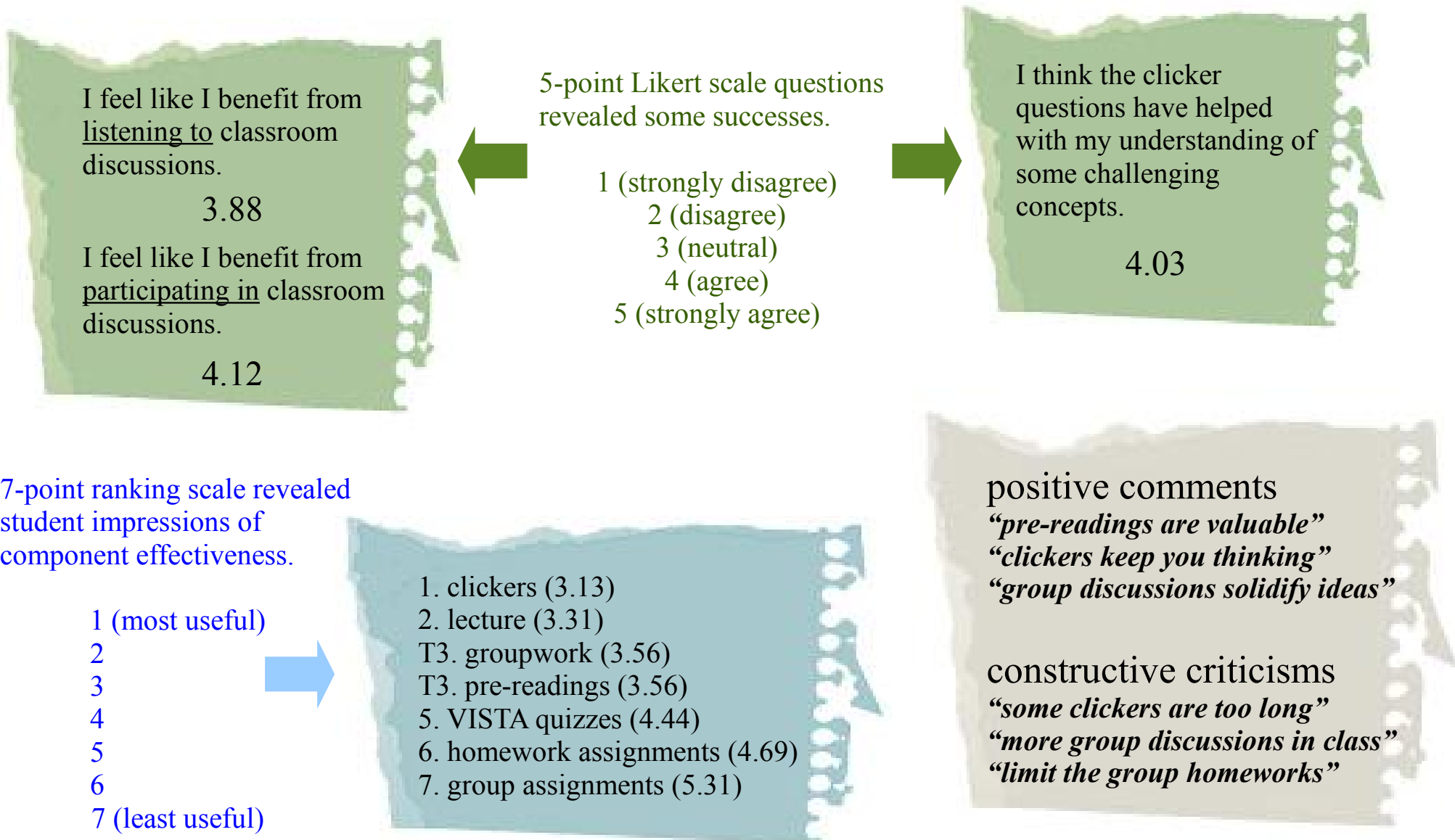


lecture time-stamping



formative feedback

6 weeks into the course, students completed a feedback survey.

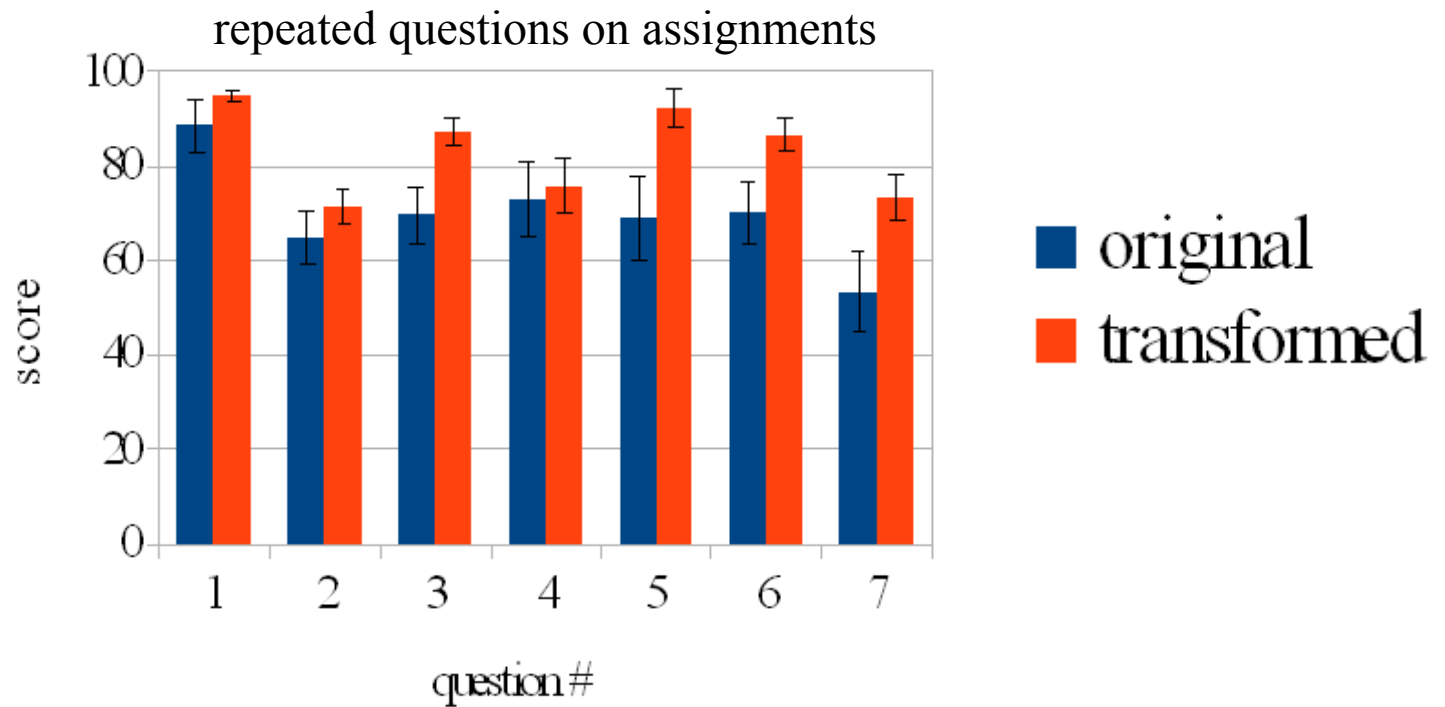


summative feedback

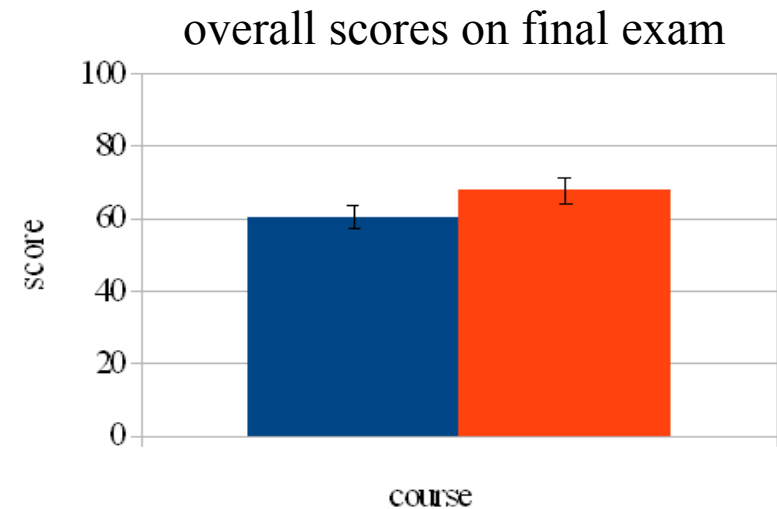
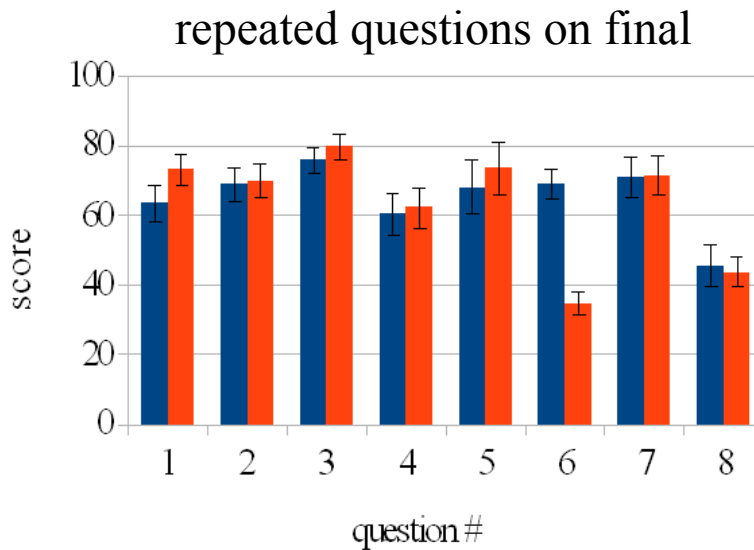
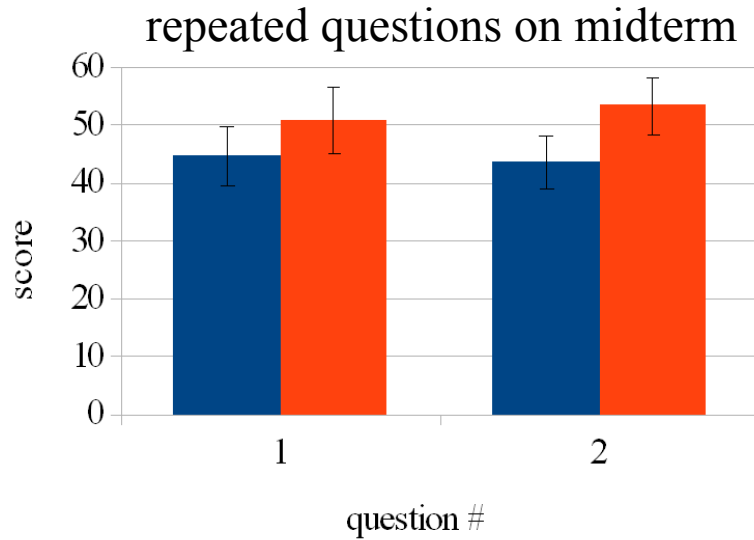
at the end of the course, students completed UBC's *Teaching Evaluation Survey*.

Example survey items	Apr 2011	Dec 2011
The instructor made it clear what students were expected to learn.	3.6 ± 0.2	4.4 ± 0.1
The instructor communicated the subject matter effectively.	3.4 ± 0.3	4.2 ± 0.2
Overall, the instructor was an effective teacher.	3.8 ± 0.3	4.3 ± 0.1
This course promoted conceptual understanding.	3.9 ± 0.2	4.2 ± 0.2
The learning activities helped me to succeed in this course	3.4 ± 0.2	4.2 ± 0.2
Summary of Results	3.8 ± 0.1	4.3 ± 0.1

scores comparison - assignments



scores comparison - exams



summary

★ students like the transformed course, better than before; much greater student participation and interactivity

★ signs of improved conceptual understanding; no measurable effects on formal aspects dealing with calculations

