

Why is problem-based learning not motivating my students?

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SUBJECT

1. Using fireworks to construct a problem-based chemistry lesson.
2. To save my students from abstract and boring chemical calculations
3. and find them being motivated by involvement.

1. Subject is initiated by Wolfert research group and chemistry teachers
2. because a lack of experience with problem-based lessons.
3. While school is confronted with an updated chemistry curriculum including a context integrated approach.

REALISATION

1. Literature search for best practices and conditions to success, design context-orientated chemistry lessons, find a motivation monitor, give lessons and make observations.
2. 18 Havo 4 students filled in the motivation survey before/after the 7 lessons given in a 3 week period.
3. We found out that 3rd graders might be more open for trials like this, repeating structure in lessons provide clarity about expectations, an extra conceptual lesson is needed, problem-based test are needed, differentiation improves involvement.

1. Helped by the school research team and ICLON
2. during planning, analysing results and writing report.
3. Doing research together works better
4. in getting direct feedback and advice.
5. We had problems finding useful and proven research methods, inaccessibility of literature and shortage of time slots for real cooperation
6. we found experience and confidence.
7. More experiments followed with a few other teachers.

DISSEMINATION

1. Presentation to Teachers at Wolfert and Woudschoten chemistry conference.
2. Publication in IB Journal.
3. Used as student material at TU Delft teacher education.

1. Using school newsletter, presentations at general and department meeting, sharing results at the annual research carousel
2. we reached nearly all teachers in school.

IMPLEMENTATION

1. Students and teachers have to get used to problem-based learning.
2. Students can co-create lessons.
3. Motivation monitor used by others.
4. Learning by doing suits chemistry.
5. Some more ad hoc problem-based learning.

1. Results used by chemistry teachers
2. because they personally want to.
3. They are in need of time management, goal setting, organisational, plan-do-check-act, pupil as customer and risk taking skills.
4. Goal setting before cooperation before developing.