Student attitudes to unconventional learning environment

Quoting a student: “It is the communication that changes all”.

Björg Pétursdóttir
Relationen mellem læreruddannelsen og skoleudviklingen

Kongressens tema

- Formålet er at forøge forståelsen mellem det som læres på universiteter og det som læres på praktikstederne
Science is an important component of our European cultural heritage. Yet in recent times fewer young people seem to be interested in science and technical subjects.

Education that focus on the foundational knowledge of the three sciences – biology, chemistry and physics does not meet the needs of the majority of students.

Science education for all can only be justified if it offers something of universal value for all rather than the minority who will become future scientists.
7 recommendation

1. Educate students both about the major explanations of the material world that science offers and about the way science works
2. More attempts at innovative curricula and ways of organising the teaching of science that address the issue of low student motivation are required
5. Developing and extending the ways in which science is taught is essential for improving student engagement.
6. Develop items and methods that assess the skills, knowledge and competencies expected of a scientifically literate citizen
7. Good quality teachers, with up-to-date knowledge and skills
Year 1999

- New National Curriculum for upper secondary schools in Iceland
- Three new science courses
  - biology
  - geology
  - chemistry/physics
- Obligatory for all matriculation examination students
- To enhance understanding and connection to the everyday life
New science course
unconventional learning environment

Inspire positive attitude:

- Connection to the everyday life
- Learning science without the hindrance of mathematic
- Responsibility
- 70% lessons are assignments
- Lessons from 9-12 four days a week
- Relatively big student groups (50 – 75)
- 2-3 teacher
New science course
unconventional learning environment

- The course was divided into five sections
- The first section was an introduction period for two weeks but the other four lasted three weeks each
- Every section had its own theme, like groundwater, mapping and weather, geothermal, earth material and energy resources
- Every section had a week long assignment based on cooperative learning strategies and inquiry based learning
- The last four sections finished with an examination (often digital) and a student evaluation (digital)
Results based on:

- Student answers to a questionnaire about the use of information technology, group work, attitudes toward science, learning and teaching methods (185 stud.)
- Student daily reports about group work
- 6 individual interviews about group work
- 3 group interviews about attitude toward science
Results

What type of assignment do you like most?
- a week long project work in group (39/59)
- working with maps (14/59)
- multi-choice digital (4/59)

- Why the group work?
  1. group work
  2. learning something new
  3. making a poster
  4. the field work
  5. the independence
  6. no reason

- Why map-work?
  1. learning something new
  2. drawing and colouring
  3. interesting
  4. no reason
Group work – cooperative learning

- Cooperative learning
  - helps you raise the achievement of all students including those who are gifted or academically handicapped
  - helps you build positive relationships among students
  - gives students the experiences they need for healthy social, psychological and cognitive development

- Your role when using cooperative learning is multifaceted
  - you must make a number of pre-instructional decisions
  - explain the learning task and the cooperative procedures to students
  - monitor student groups as they work
  - evaluate the quality of students’ learning
  - encourage students to process how effectively their learning groups are functioning

Johnson, Johnson and Holubec 1994
Student think the group work is the **best** and the **worst** thing about the course

**Did every group member take part in the group work?**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Not always</th>
<th>No</th>
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<tbody>
<tr>
<td>%</td>
<td></td>
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**Why do group members not work equally?**

<table>
<thead>
<tr>
<th>Stud. explanation</th>
<th>169 answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>laziness &amp; carelessness</td>
<td>33%</td>
</tr>
<tr>
<td>no interest</td>
<td>21%</td>
</tr>
<tr>
<td>shyness &amp; unsociability</td>
<td>9%</td>
</tr>
<tr>
<td>absentee</td>
<td>7%</td>
</tr>
<tr>
<td>disorganization</td>
<td>7%</td>
</tr>
<tr>
<td>some are supposed to do the work</td>
<td>4%</td>
</tr>
<tr>
<td>some demand to do the work</td>
<td>2%</td>
</tr>
<tr>
<td>something else</td>
<td>18%</td>
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Results

- Those most critical towards group work are in general able students.
- Students with some interest but low self-confidence complain that some students are pushy and prone.
- But if the relations between group members were positive this kind of learning method was definitely the most popular.
Conclusion

- Although some teaching methods are more favourable than others, education is an individual process and different instructional strategies suit different kinds of personality.
- Group work/cooperative learning as a teaching strategy should be carried out with care as students’ attitude on its usefulness vary considerably. That refers to execution and assessment of the group work.
- Communications between teachers and students with low self esteem in natural science should be characterized by encouragement, avoiding judging and dissuading.
Quoting a student:

“It is the communication that changes all”