

Working toward a Knowledge Building institutional culture

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Why:

Middle and high school students at Gimnasio La Montaña are **not engaged in creating their own explanations and theories about science** (both natural and social science) using multiple sources of information and tend to **expect their teachers to provide most of the answers and guidelines for learning**. When they do use multiple sources, they have great difficulty synthesizing the information they gather to create one coherent explanation. Additionally, their level of autonomy in relation to knowledge and learning (cognitive responsibility (Scardamalia, 2002)) is low.

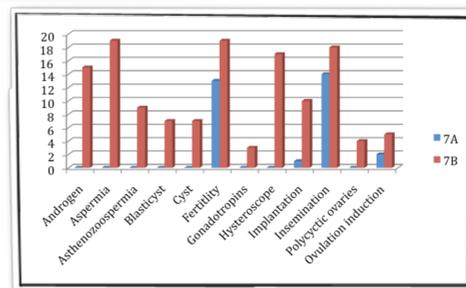
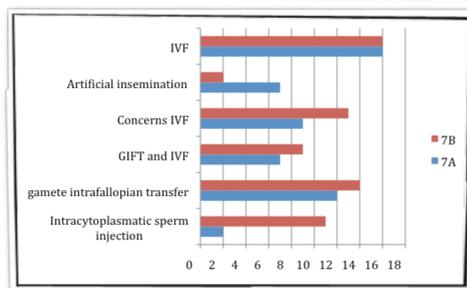
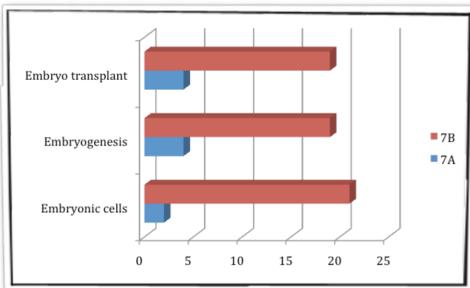
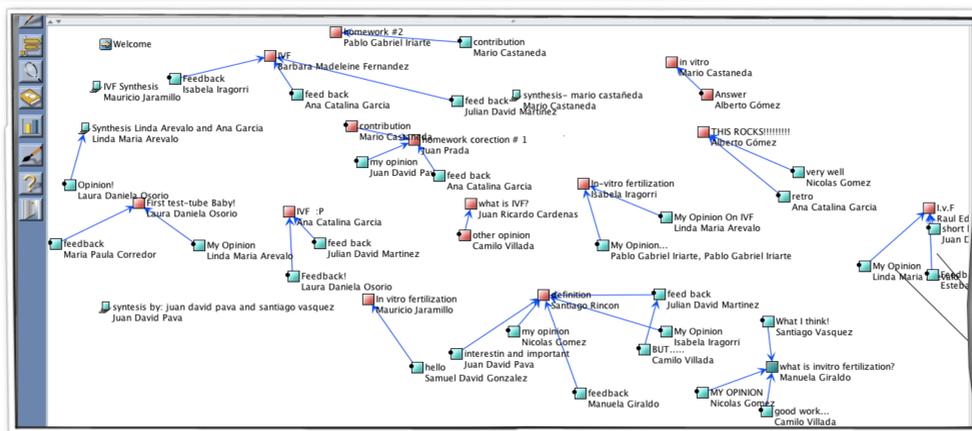
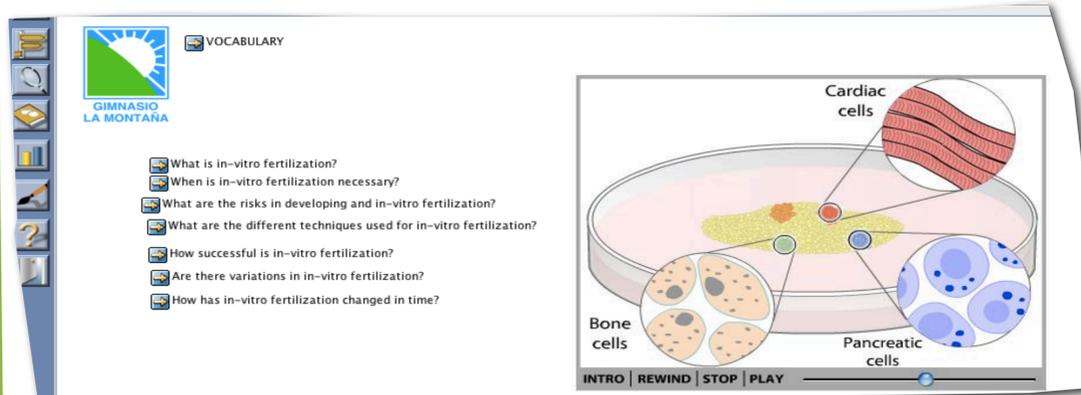
Goal:

Promote knowledge building as a fundamental part of our institutional culture and practices, develop a synthesizing mind (Gardner, 2007) in our students, as well as greater levels of autonomy and responsibility with knowledge.

How:

Students ranging **from third to eleventh grade will work in knowledge building research projects in different areas** (Science, History, Religion and Ethics) in which the teacher serves as a guide and support and the students conduct the research activities. Knowledge Forum is used as a support for these research initiatives.

To promote a school-wide knowledge building culture, **teachers themselves participate in a research initiative that uses KF to scaffold an investigation about the development of autonomy in middle schoolers**. This project attempts to build our community's understanding about the issue and propose pedagogical strategies that support the development of autonomy in our students, especially in relation to knowledge and learning.



Progress:

Students in various courses have worked with KF and KB. We are particularly proud of the advances made by **seventh graders in Biology class**. They **studied in-vitro fertilization**. We attempted to find differences between two groups of students: one of the groups followed a **traditional methodology, where the teacher guided the activities and lectured about the topic (control group)**. The control group classes' methodology was based on explanations, animations and Youtube videos. The other **group worked with KF and KB pedagogy** roughly as described by Scardamalia (2002), Scardamalia and Bereiter (2007) and Zhang (2009) (**experimental group**). Students in the experimental group were able to ask questions and answer them as a group by searching in different sources and guiding the depth of the research. Students in the control group solved their doubts by asking the teacher and listening to her answers. They included their findings in KF and discussed or completed the information brought by their classmates. They asked for help when they didn't understand a term, definition or procedure, solved their peers' doubts and learned as a group.

Outcomes were assessed through tests that included descriptions of the procedures and vocabulary acquisition. They were precise when comparing different techniques and when explaining the risks included. They read more articles, books and journals than the control group and were also able to understand and describe all the procedures in detail. The acquisition of scientific vocabulary increased, as they needed to understand medical articles related to the topic. By the end of the curricular unit, **the experimental group outperformed the control group in most measures used, especially vocabulary acquisition.** The control group demonstrated more understanding of the conventional methods than the new ones.

References

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