

არის თუ არა ღვინოში მზე?

# Is the sun in the wine?

**Practical inquiry to support teaching of natural sciences** 



### Goals:

- To increase motivation of students
- To gain new knowledge about chemical reactions of photosynthesis and wine production
- To gain and develop new skills (entrepreneurial, research, cooperative)
- To popularize subjects of natural sciences
- To realize perspectives of future employment

- Ilia state university
- School: Napareuli Public school, Telavi Municipality
- Teacher: Nino Saakashvili
- School subject: Chemistry, biology 10<sup>th</sup> grade
- Partner enterprise Chotiashvilebi Wine Cellar

#### How can enterprise help school to motivation of the students and develop their entrepreneurial competencies? Observation Observation Observation



#### Action

- Motivational lesson to discuss the task of thematic situation
- Question for discussion: for which employment fields is necessary to have the knowledge of chemistry and biology?
- My visit in enterprise and interview with the head of enterprise

### Observation

- Pre-questionnaire
- SWOT analyse how would it be possible to use enterprise to achieve or goals • Diary of notes

### Reflection

- Low motivation of students to learn subjects on natural sciences
- Low interest in having knowledge in those subjects for future profession



### Planning

#### Action

- Visit in the enterprise with students • Lesson – finding the answer for the question – how sun light can reach the drop of grape?
- Lesson experiments modeling a factors that influence on ethanol fermentation process
- Discussion factors that influence on ethanol fermentation process

### Observation

- Diary of notes
- "Critical" friend Natalia Beriashvili, teacher of civil education
- The focus group of students

### Reflection

- Increasing interest of students toward the subjects of natural sciences
- The students like a lot "learning by doing",



Reflection

#### Reflection Planning

### Action

- Visiting Twins Wine Cellar (wine tourism with agricultural-historical elements)
- Three lessons "How and why is wine converted to vinegar?" (teaching science through inquiry)
- Meeting interview with young but experienced winemaker-sommelier Sopo Osepashvili

### Observation

- The focus group
- Diary of notes
- "Critical" friend
- Post-questionnaire

### Reflection

- The increase of motivation of students, their involvement in different thematic activities
- The increase of science interest for future

• To learn about activities of enterprise can make students interested and increase their motivation

#### Planning

- Visit in enterprise
- To prepare questionnaire for the structures interview



- role game, experiments
- Hoping that the interest of students will be increased even more by learning about the real scale processes of enterprise

#### Planning

• To continue partnership with an enterprise • To plan and implement next cycle of the inquiry in the new academic year



profession - especially girls

• Students analyzed what they need to learn and what skills they need to start and develop their successful business. What will help them and that may become an obstacle at this time.

#### Planning

To continue project



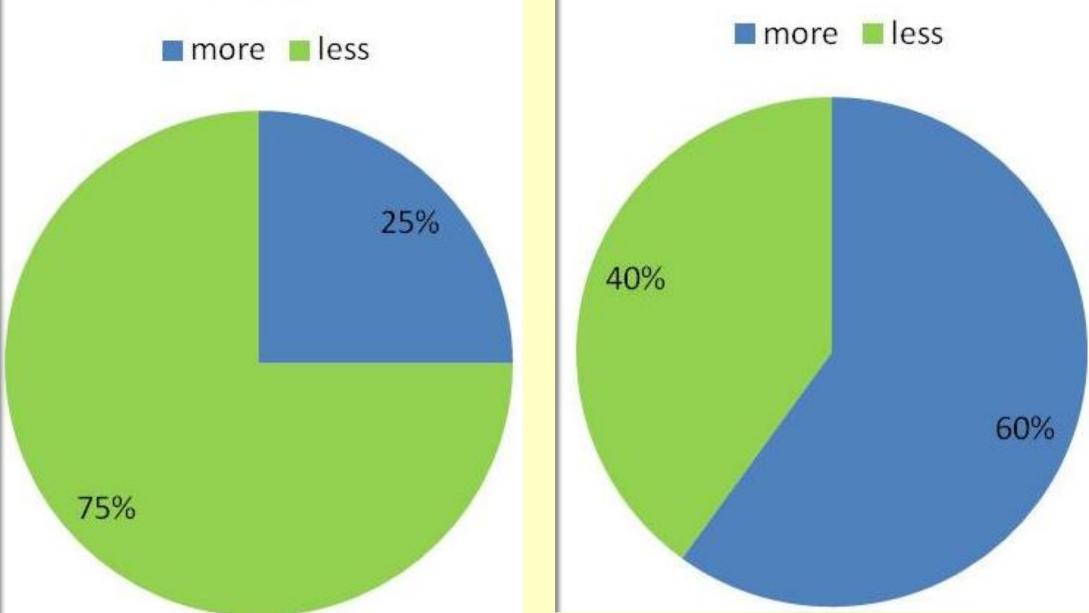
## Motivation

Pre

Post

Conclusions The students For my profession

Pre



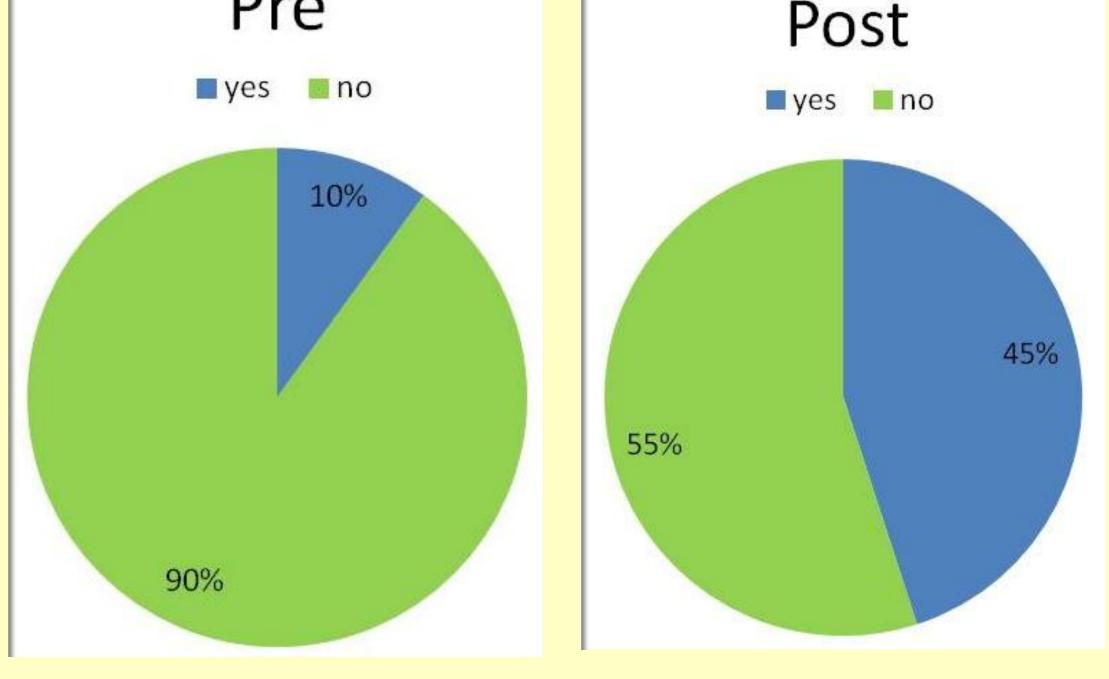




- Realized the importance of learning subjects of natural sciences
- Understood the importance of gaining entrepreneurial skills already at school
- age • Expressed the opinion to include entrepreneurship as an mandatory subject at school

#### Planning

To continue project with different students (another grade) based on the experiance, skills and inspiration that I got during this project.



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