

# ASSESSING PLANING SKILLS WHEN STUDENTS ARE INVOLVED IN THE INQUIRY ACTIVITY: “UP THERE HOW IS IT?”

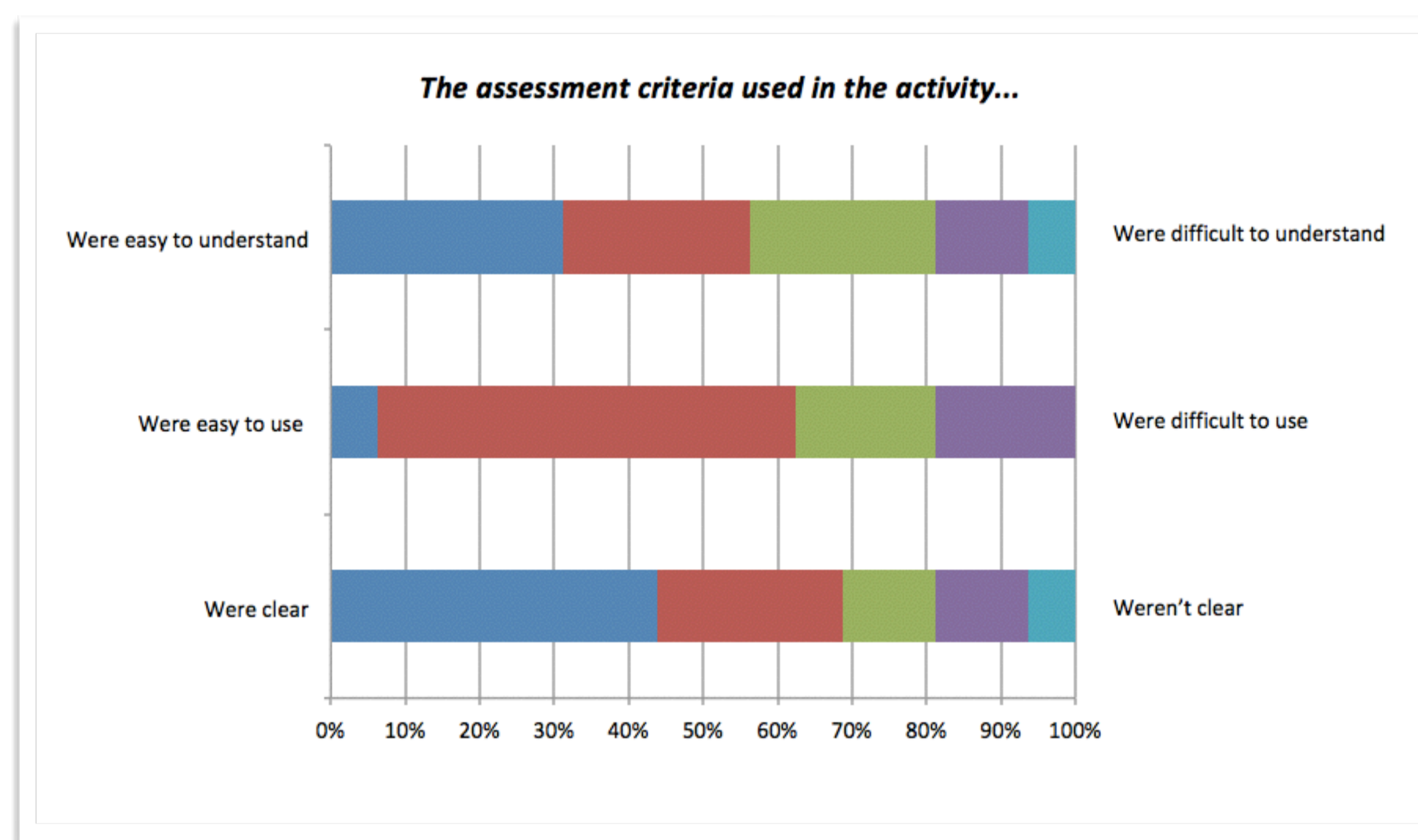
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## Objectives

Knowing the difficulties and potentialities, from a Physics teacher’s perspective, of an assessment tool designed to assess students’ planning an investigation skills, when they are involved in an Inquiry activity.

Knowing students’ perceptions regarding the assessment process and tool.

## Students’ perceptions regarding the assessment process and tool.



## Methodology

**Participants:** 32 students of the 11<sup>th</sup> grade

**Data Collection:** students’ perceptions—semantic differential developed by SAIL’s Portuguese team; teacher perspective: students’ written documents.



## Findings:

### Teacher perceptions regarding the assessment tool.

**Question:**  
How does a mixture of two substances with different densities behave in a microgravity environment?

**Goals:**  
The goal of this experience is to compare the mixture of two substances with different densities on Earth and on a microgravity environment, such as ISS.

**Hypothesis:**

- The olive oil clearly separates itself from the water, although it does not become evenly distributed.
- The liquids separate originating a heterogeneous mixture.
- One of the liquids is distributed around the other.
- The water overlies the olive oil, such as the olive oil overlies the water.

**Necessary materials to execute the experience:**

- 1 bag of 250 ml of water
- 1 bag of 250 ml of olive oil
- 1 bottle of 550 ml
- 2 researchers

**Procedure:**

- The first researcher simultaneously squeezes both bags to make the liquids move towards the bottle opening.
- The second researcher grabs the opened bottle, gathers the liquids and the closes the bottle.

	Earth	Space Station
Does separation occurs?	Yes	
Does the olive oil overlie the water?	Yes	
Does the water overlie the olive oil?	No	
Do they mix evenly?	No	

## Conclusions

### Teacher’s perspective:

The instrument allowed to assess the students’ performance regarding the planning an investigation skill.

The use of this instrument, allowed decreasing the subjectivity of qualitative assessment, such as to assess skills and to systematize the collected information from students’ work, facilitating the oral feedback that was carried out after the completion of the task.

**Students’ perceptions:** Most of the students perceived that knowing the assessment criteria was important, because gave the opportunity to make better decisions, helped the learning process, allowed to monitor their own work, showed the importance of having clear outcomes and increased the interest in the activity.

students’ written documents: Level 2 – Exemple