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# Title: Matrix for the Analysis of Teaching Practice by Graduate Students

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# **Introduction**

A mixed qualitative research in 5 stages intended to evaluate the impact in the professional development of the students from the Master in Basic Education with specialization in Reality, Science, Technology, and Society.

While in the first stage (population characterization), second (knowledge) and fourth (written production) the data for the investigation is taken from individual cases, the third (practical) and fifth (focus interview) analyze the group situations.

## Objective:

The third stage of the research tries to answer the question: *How the practices of the beneficiary teachers change with their studies in the graduate program?* Its objective is to evaluate the impact of the program in the improvement of the student-teachers practices.

## Method:

This article shows the material made during the third stage, in respect with the design process of the matrixes for the characterization and analysis of the teaching practice in the intervention.

# Hypothesis

**H1** The meaning of the activities rely on its position in the sequence of the class guided by the teacher.

**H2 The social becomes content.** The process of knowledge construction, implies a negotiation of the meanings and the modification of the sociocultural context, as it generates the conditions that benefit or obstruct the learning.

**H3** In respect to which are the effects of the teaching actions in the production of affirmations, explications and arguments in the students.

**H4** The actions developed by the teacher have their basis in their formation, initial and permanent, whose tendencies run in parallel to the educational politics from each period.

# Results: Matrixes

MATRIX TO OBSERVE ACTIVITIES AND THEIR CONTEXT	
Indicators	Obtained codification
Types of Activities	
1) Contained	As: Enumeration of actions and examples. Ma : Closing sequences with short definitions
2) Tasks	It is clear the sequence of tasks.
3) Participation	They are clear rules of individual participation, team and group .
Routines	Question and Answer, enumeration, sequence of activities .
Interruptions	Murmullan when a subject seems funny.
Uso del <i>espacio-tiempo</i>	Furniture organized by teams, teacher leads class control from the front of classroom.

MATRIX TO OBSERVE OBJECTS AND REPRESENTATIONS	
Indicators	
Obtained Coding	
<b>Translation</b>	Teacher combines verbal language, gestures and writing on the blackboard. Students answer questions with short answers, equipment and build a poster exhibit.
<b>Objects</b>	Blackboard, leaves held together with tape, bags of junk products and markers, written symbols, simple enumerations, few complex ideas.
<b>Representation</b>	Poster with an anti-advertisement that describes true characteristics of product.

Variations of Instruccional Frame for Scientific Explanation (McNeill and Krajcik, 2012, P. 35) (Fragment)	
<b>Complex Level</b>	<p>Variation 4</p> <ol style="list-style-type: none"> <li>Affirmation -a statement that answers the question</li> <li>Evidence -data scientific evidence supporting -data need to be appropriate -data need to be sufficient</li> <li>Reasoning Multiple components -a justification why the evidence supports the claim using scientific principles Each piece of evidence may have a different justification why it supports the claim</li> <li>Rebuttal -describes alternative explanations, and provides evidence and inconsistent reasoning why the alternative explanation is not appropriate</li> </ol>

# Conclusions

The use of matrixes by the researchers in collaboration with the students (auto-observation) help to make visible the best practices, the agency of the actors when they face the problems and focusing in authentic problems, in the sense that they overcome prefabricated, linear or exclusively evaluative models, which contribute little to the satisfaction of the educators and their beneficiaries' necessities.

This research agrees with Engeström (2011, p. 602) in the proposition that the theoretical problem that underlays in the intervention is one of causality, because it needs a methodological and ethical vigilance over the agency's empowerment process.



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