

# DIFFICULTIES OF ELEMENTARY SCHOOL TEACHERS FOR ASTRONOMY TEACHING

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This presentation reports on an excerpt of the data collected during a continuing education course within the project "The Diary of Sky - Introduction to Astronomy for Basic Education Teachers", in its second stage, developed by State University of São Paulo, in partnership with Università La Sapienza in Rome, Italy. The course was held from March to December 2017; the participating teachers belong to the public education network in the region. One of the first steps of the project was the translation into Portuguese of the *Diario del Cielo*, conceived by Nicoletta Lanciano, from the University of Rome, and its adaptation to the geographic coordinates of the city of Bauru.

The course was developed using different teaching strategies: lectures and practices, questionnaires, semi-structured interviews, and focus group. During the course, teachers filled out "The Diary of Sky", the material that gives the project its name, through daily observations of the positioning of the celestial stars. The teachers developed with their students, the activities carried out in the monthly meetings and some classes received "The Diary of Sky" to work on throughout 2017.

The main objective of the research was to analyse the difficulties faced by teachers, who work in the initial and final years of elementary school, with the implementation of this proposal for teaching Observational Astronomy in their schools, in addition to evaluating the impact of this Basic Astronomy course in teaching practice. According to Langhi and Nardi (2012), teachers present conceptions far below those required for an adequate performance in the classroom. This project used a qualitative methodology and had the participation of teachers from different disciplines, including Science, Mathematics, Physics, Geography and Pedagogy. The theoretical framework used was the Discourse Analysis (DA), of French line, Pechetiana, proposed and introduced in Brazil by Eni Orlandi (2003).

In total, twelve teachers from the Municipal Department of Education of Bauru applied "The Diary of Sky" with 142 students from Elementary School Early Years in 4 different schools. In the State Department of Education, Bauru Board, 15 teachers and 248 students were involved in 6 different schools. The analysis of the questionnaires points out limitations of the teachers involved in the process of understanding and teaching some phenomena related to Astronomy, such as seasons and phases of the Moon, indicating misconceptions of concepts and spatial relationships between the stars. Based on these limitations, it can be inferred that teachers have gaps in their initial and continuing education in relation to astronomy teaching content and methodologies. This fact is aggravated when teachers, in their educational practices, have to contemplate in their classes different themes related to Astronomy, attending to educational plans and curricula. Such actions, according to teachers' reports, sometimes generate a feeling of incapacity and insecurity, in addition to the lack of contextualization and adequate sources of information when working with the theme in schools. Also, according to the teachers' reports, continuing teacher training in Astronomy is essential, given the need to experience it in a practical way. Hence, the need to rethink the curricular proposals of teacher training courses in Astronomy, aiming to give meaning to astronomical disciplinary knowledge within a longitudinal development, coherent in itself and with everyday experience.

## REFERENCES

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