

The use of “The Diary of the Sky” as a teaching strategy for Astronomy in the context of the continuing education of Basic Education teachers

Abstract. This text describes one of the phases of a broader research, carried out by the *Grupo de Pesquisa em Ensino de Ciências, UNESP, Bauru Campus, São Paulo (SP), Brazil*, which has shown the gap between the academic production in the Astronomy Tuition field and the knowledge and practices of graduates and teachers employed in Basic Education. Seeking to intervene in this scenery, this study takes into account some of the expectations, limitations and difficulties pointed out by a group of Basic Education teachers, from the public school system in Bauru, based on the use of the 'Diary of the Sky' as a teaching strategy in Astronomy.

1 The educational formation in Astronomy Education

Although the growing presence of initiatives aimed at Astronomy teaching in Brazil and abroad, according to results of research carried out in the Astronomy Tuition field, among which [1], [2], and [3] stand out, respectively, presents promising data regarding the professional formation in Elementary, Middle and High levels of Basic Education, as well as in the official curriculum programs of Further Education Institutions, with emphasis on the development of teaching, extension and divulgation projects, for example, it also equally reveals the need of giving meaning to astronomical disciplinary knowledge, in different educational contexts, within a longitudinal development that is coherent in itself and with the student's everyday experience.

In this sense, from an extensive research in Astronomy didactics, of cooperative character between Brazil and Italy, developed between *Grupo de Pesquisa em Ensino de Ciências (GPEC)*, of the *Faculdade de Ciências, UNESP, Bauru Campus (SP)* and *Gruppo de Ricerca sulla Pedagogia del Cielo*, of the *Movimento di Cooperazione Educativa (MCE)*, Rome, Italy [4], this study takes into account, in a brief report, some of the expectations, limitations and difficulties pointed out by a group of Basic Education teachers, from the public school system in the city of Bauru, São Paulo, participating in a continuing education course entitled: *Diary of The Sky - Introduction to Astronomy Didactics for Basic Education Teachers*.

The qualitative methodology in use, based on the proposed objective, made it possible, with the group of teachers and their students, to obtain data from the use of the didactic-pedagogical material *Il Diario del Cielo*, in the format of an astronomical school diary [5], originally elaborated for the reality of the Northern Hemisphere, by Prof. Dr. Nicoletta Lanciano, from the *Università “La Sapienza” di Roma* and coordinator of the *MCE*, being then translated and adapted to the reality of the tropical strip of the Southern Hemisphere [6].

The teaching and learning activities developed throughout the course, starting from the sequence of activities proposed in the book *Diary of the Sky*, consisted in the presentation of the conceptual framework related to everyday astronomical phenomena, with emphasis on the recognition of the local horizon, spatial-temporal orientation, times of rising, culmination and setting of both Sun and Moon, duration of the day according to the period of the year and latitude of the place of observation, seasons of the year, phases of the Moon, among others, and in the deepening of educational aspects and cognitive peculiarities of Astronomy

didactics, appropriating elements of Observational Astronomy, such as: a) active, direct and systematic observation of the sky and surroundings; b) activities with explanatory didactic models and c) outdoor work

2 Conclusion

Among the obtained data, after the completion of the work, there is evidence that teachers, in general, showed to be favorable to the proposal and use of the Diary of the Sky as a teaching strategy for Astronomy, favoring the mobilization of new understandings, product of individual and collective work, to observe the sky, to build the proposed instruments, to visualize and exchange materials, to discuss and evaluate the path, methods and learning processes involved.

Although teachers have signaled the need to overcome gaps present in Astronomy education and its tuition, the difficulty in managing school time and space during the process of implementing the Diary of the Sky with students and the lack of a habit for a direct and systematic observation of natural phenomena, they considered the proposal relevant in order to enable students to articulate concepts, models and theories with what is observed in real time daily in the sky, along with the distinction between evidence and interpretations of phenomena and experiences, the sharing of hypotheses, inferences and different points of view, in addition to the co-responsibility of the learners in the sense of making their own discoveries about the themes in matter.

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