

THE PROFESSIONAL ACTIVITY OF A PROSPECTIVE TEACHER THROUGH THE DOCUMENTATIONAL APPROACH TO DIDACTICS: JOSÉ'S CASE

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One of the aims of the qualification education programs for prospective secondary school teachers (PSTs) is to prepare them to carry out the teaching professional activities: planning and implementing lessons, and reflecting on them. To do this, PSTs must learn to read, use and adapt curricular materials and resources in general. To study José's professional activity when planning a lesson, in his teaching internship period, course 2020-21, at the National Autonomous University of Nicaragua-León, we have adopted the *Documentational Approach to Didactics* (DAD) in order to understand José's professional development through the study of his interactions with the resources he used and designed in/for his teaching (Trouche et al., 2018).

These interactions are mediated by how teachers use, modify, adapt these resources (Instrumentalisation) and how their possibilities and limitations can influence the teaching-learning process of students (Instrumentation). *Teacher documentation work* is the engine of a *documentational genesis*, which jointly develops a new resource and a scheme of utilisation of this resource, giving rise to a document for a class of professional situations. A scheme of utilisation not only implies *invisible aspects*, the *operational invariants* (the cognitive structure that guides the action), but *observable aspects* (*uses*). Therefore, we ask ourselves the research question:

- What are the documents developed by José in his lesson planning?

The data of this study is a lesson planned by José, on the application of the trigonometric ratio tangent of the angle in problems of the environment, in which he used Official Curricular Resources and Cognitive Resources. Through the inferred mapping of the resource system that José used in the planning of the lesson, we obtained five documents and made the operational invariants explicit, such as "Introducing key questions to help students infer the rule of use of the tangent."

The DAD allowed us to know how José used the different resources at his disposal to plan a lesson and infer his mathematical knowledge through the instrumentation and instrumentalisation carried out of these, and beliefs through the operational invariants.

References

Trouche, L., Gueudet, G., & Pepin, B. (2018). The documentational approach to didactics. In S. Lerman (Ed.), *Encyclopedia of Mathematics Education*. Springer.