

Exploring with teachers the functional world in an enriched environment with computers¹

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The research team at the University takes part of a collaborative group with secondary school teachers in order to study the transformation produced by the introduction of the computers into the students' work.

A brief tour about the collaborative group:

In 2008 a group² of high school teachers of Buenos Aires, specialists in teaching mathematics and students-teacher was formed. The idea was to think all together about the teaching of mathematics, designing proposals and analyzing their performance at class. From the beginning, the group's concern was how to communicate their productions to other teachers in the country³.

-Late in 2009 began the distribution of notebooks in all the public secondary schools around the country. "One for each student, with the goal of "reduces the technological gap" between different sectors of society. In order to think how this incorporation can contribute to improve the secondary school education, the "Monday's Group " started to consider this incorporation in their educational proposals.

-First, they develop a proposal for learning polynomial functions that picks up that challenge⁴. In my lecture I hope to share details of this collaborative work.

- Currently and since 2012, the group of teachers met with teachers from the UNIPE. We work from the teaching sequence developed by the Monday's Group, about quadratic function in a context of "pencil and paper", with the intention of transforming it to carry out an embodiment of the computer at work students. I will be details in my lecture of this step of work.

The convergence of views and approaches on the one hand, and the diversity of experience, on the other, that characterizes the conformation of the research team, create good conditions for thinking about teaching and learning in key transformations for real and proper integration of TIC.

¹ This lecture documents a joint effort with my colleagues at Universidad Pedagógica, Betina Duarte, Rosa Cicala, Valeria Borsani, Mara Cedrón, Enrique Di Rico and Juan Pablo Luna, and a collaborative work with the teachers Marina Andres, Marité Coronel, Claudia Kerlakian, Eduardo Cirigliano, Deby Sanguinetti and Mg.Gema Fioriti (Universidad de San Martín).

² Because of the day the group meets, it's called "Grupo de los lunes" (Mondays group).

³The group has already produce a proposal in 2009 and publish the document "Matemática, función cuadrática, parábola y ecuación de segundo grado. Aportes para la enseñanza. Nivel Medio" [Math, quadratic function, parabola and second degree equation. Contributions to teaching. In secondary School]. M Educación del Gobierno de la Ciudad de Buenos Aires, Buenos Aires, ISBN 9789875495823. 2014. Available in <http://estatico.buenosaires.gov.ar/areas/educacion/curricula/media/matematica/matematica-cuadratica.pdf>

⁴This proposal was recently published in the online collection Herramientas of the UNIPE editorial: "*Introducción al trabajo con polinomios y funciones polinómicas. Incorporación del Geogebra al trabajo en el aula*" [Getting started with polynomials and polynomial functions. Introducing Geogebra to classroom work], Editorial Universitaria de la UNIPE, 2015. ISBN: 978-987-3805-07-3 Available in <http://editorial.unipe.edu.ar/wp-content/uploads/2015/10/Libro-Matem%C3%A1tica-UNIPE.pdf>