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## GeoGebra in Egypt

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We started using GeoGebra in Egypt in November of 2008. It was one of three programs I used for my personal study into the improvement of mathematics interactive learning in the classroom, and especially how the use of ICT can enhance mathematics education in Egypt. GeoGebra was accessed from the web site: <http://www.geogebra.org>.

Immediate first impressions of using GeoGebra were that it is simple for the beginners to learn, straight forward to use and has a multilingual interface. Because of these and other factors, I decided to share my use of GeoGebra with my friends at my work in Ministry of Education. Our idea was to try to introduce GeoGebra to all the teachers who work in mathematics and science classrooms in the Arabic world. In this ambition, we were encouraged by the fact that we were not alone; we really thank Dr. Markus Hohenwarter and all his colleagues who have worked hard to give us this wonderful program.

I undertook my own training through a combination of making use of the online forum for GeoGebra: <http://www.geogebra.org/forum/> and direct email contact with Dr. Hohenwarter, who was very generous at the beginning in showing me the correct way to start with GeoGebra.

We are now five teachers working together as a team of instructors introducing GeoGebra in Egypt. We have already constructed a website at <http://geogebra-egypt.wikispaces.com> which we continue to develop. We are currently training 85 teachers from different governorates of Egypt. Our main emphasis is on the integration of technology into their teaching in the classroom and especially the integration between geometry and algebra using GeoGebra in mathematics lessons.



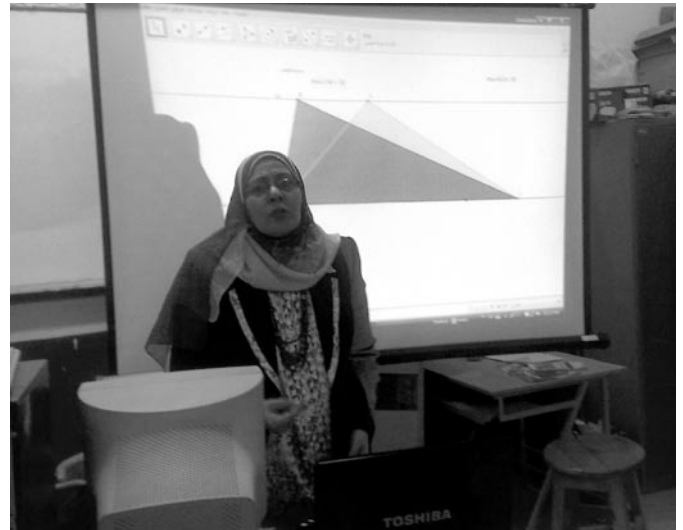
Fig 1 – The trainees are shown some of the GeoGebra examples



**Fig 2 – A trainee investigates an area example using GeoGebra**

The success of the GeoGebra program in training the teachers has been due to a number of factors. The program itself is generally found to be very easy to work with. The Arabic interface, and the ease of changing languages, has ensured that language issues are not a barrier. Teachers can easily generate their own examples and GeoGebra can be applied in all stages of education from primary schools to secondary schools and beyond. This is one of the features of the program that gives teachers the opportunity to explore educational concepts in mathematics from the easy to the difficult in line with the mental age of the students. Furthermore, it provides an easy and interesting way to help the students to think creatively and participate within the classroom - so that it is not always the teacher that is the focus of the educational process. In addition, this participation is enhanced through: the ability of GeoGebra

to allow students to see and draw through constant observation and repeated, varied examples; and, the various mathematical issues that arise in the classroom discussion.



**Fig 3 – Teachers are trained to explain some GeoGebra examples and encourage student participation**

So far all the teachers that have participated in the training in GeoGebra have said that the program is very important in helping them to integrate technology into their teaching of mathematics in the classrooms and in allowing them to successfully develop technology-assisted practice in the teaching of mathematics.