

2006 TAIWAN INTERNATIONAL SCIENCE FAIR

CATEGORY : Mathematics

PROJECT : Dynamic Geometry and Problem Solving

AWARDS : Mathematics Third Award

**SCHOOL : Centro de Estudios Tecnologicos industrial y de
servicios No.18, (CETis No.18)**

FINALISTS : Isabel Castillo Mendoza

COUNTRY : Mexico

APPENDIX 2

ABSTRACT OF EXHIBIT TAIWAN INTERNATIONAL SCIENCE FAIR

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TITLE: Dynamic Geometry and Problem Solving

NAME: Isabel Castillo Mendoza

COUNTRY: México

Within the framework of the new educational model for mathematics based on constructivism, results are presented of the design, application, and evaluation processes of a series of didactic sequences aimed at developing the student's abilities for problem solving as part of the geometry curriculum for technological preparatory schools, using the Cabri-Géomètre II software. In this case, subjects of study were ten newly enrolled students from CETis 18 preparatory school in Mexicali, Baja California, Mexico.

The theoretical basis for this work is the constructivist approach, mainly emphasizing Máshbits views (1997) regarding problem solving.

This didactic proposal was longitudinally applied in a quasi-experimental qualitative design under the following analysis categories: problem solving skills and the impact of Cabri-Géomètre II in geometry learning.

Recognizing the potentiality this research can have with the proper follow-up, it is intended to include it in the preparatory school curricula. For this purpose, teachers should be trained to focus their work on learning instead of on teaching. As a result of this, designing educational programs will require for teachers to become more knowledgeable not only in discipline, but in the use of computer technology, the teaching process, learning, and the students themselves. The final objective of this project is to instill educators to play this new role.

As a final point, conclusions on various psychological, pedagogical, and technological aspects are given placing emphasis on the creation of learning situations with their appropriate theoretical support. Using the Cabri-Géomètre II as a resource, these situations will provide geometry teaching with a more dynamic and interesting concept applicable to real-life situations.

評語

Dynamic Geometry creates a valuable environment for the studying and research in mathematics. To apply this modern tool properly one must master the geometric constraints linking the objects in addition to the basic "Euclidean tradition" found by the Ancient Greeks. We are thankful for the newly equipped software and hardware. We must also devote efforts to transforming traditional problems into the meaning dynamic geometry setting.