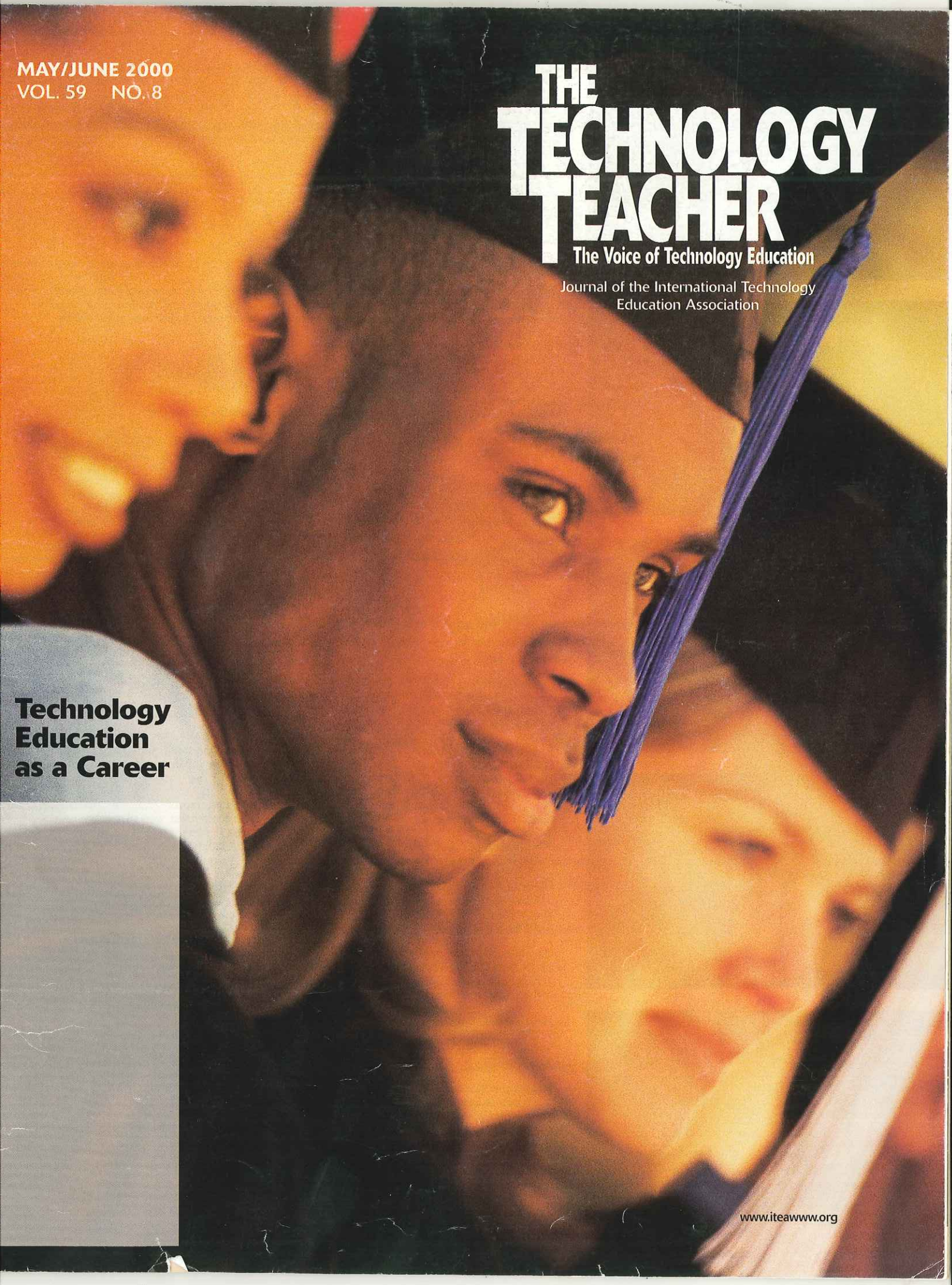
MAY/JUNE 2000
VOL. 59 NO. 8

# THE TECHNOLOGY TEACHER

The Voice of Technology Education

Journal of the International Technology Education Association



## Technology Education as a Career

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**May/June 2000**

VOL. 59, NO. 8

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*The Technology Teacher* ISSN: 0746-3537 is published eight times a year (September through June with combined December/January and May/June issues) by the International Technology Education Association. Subscriptions are included in member dues. U.S. Library and nonmember subscriptions are $70; $80 outside the U.S. Single copies are $7.50 for members; $8.50 for non-members, plus shipping—domestic @ $5.00 and outside the U.S. @ $16.00 (surface).

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*The Technology Teacher* is listed in the Educational Index and the Current Index to Journal in Education. Volumes are available on Microfiche from University Microfilm, P.O. Box 1346, Ann Arbor, MI 48106.

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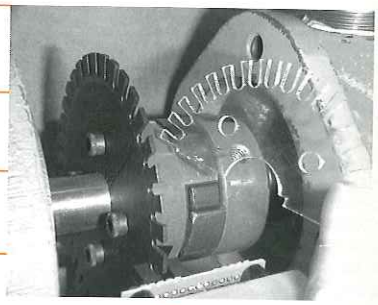

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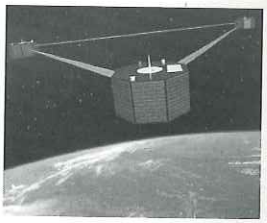

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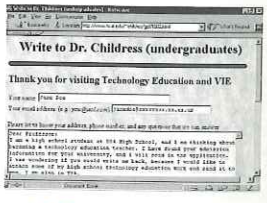


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# The Introduction of the Maryland Plan into the Greek Schools

## *Grades 7, 8, and 10*

**The "Maryland Plan" program, combining theory with applications to the laboratory and giving emphasis to the development and cultivation of individuals, was close to the traditional Greek Educational Orientation.**

NICHOLAS ILIADIS

Education in Greece has a long tradition of theoretical orientation. According to Lelakis (1976),

> *"the people in Greece tend to ignore the need for education preparing youth for real life situations. They insist on the maintenance and further development of the humanistic and classical character of Greek education, emanating from the nation's Hellenic and Christian tradition (p. 2).*

A number of efforts have been made for the introduction of technology education into the Greek schools since 1976. As a result of the fact that there were no knowledgeable persons in Greece on this subject, it was decided to send selected educators in the U.S. for training in "Industrial Arts." Dr. Iliadis, a professor of a technical college preparing teachers for vocational schools (SELETE), was one of them.

The "Maryland Plan" program combining theory with applications to the laboratory and giving emphasis to the development and cultivation of individuals, was close to the traditional Greek Educational Orientation. The production of things according to the Maryland Plan was not considered to be primary but a natural outcome of the development of the individual.

After the end of an experimental application of the technology course to fifteen junior high schools all over Greece (1981), there were no further developments.

An initial elementary technology teachers' training program was also developed and applied by Dr. Iliadis (1981) at the technical college (SELETE) where he was teaching before his Ph.D. studies under the supervision of Dr. D. Maley. This program is still in action today.

Technology education is a relatively late development in large scale in Greece. In 1993 a technology course was introduced into

the curriculum of 7th and 8th grades of all junior high schools in Greece (there are about 150,000 students per grade), after a proposition of Dr. Iliadis and of the Pedagogical Institute to the Minister of Education. In 1998, Maley's program "Research and Experimentation" was also introduced to all the Greek schools for the 10th grade students.

## The Application of the Maryland Plan Program

The Maryland Plan program is considered to be compatible with contemporary educational needs. More specifically, a lot of prominent educators and a number of recent publications from the Commission of the European Union support that "it is not an appropriate educational practice to teach a specific body of technological knowledge and skills particularly within the framework of general education, page by page in a step by step curriculum" for a number of reasons, some of which are:

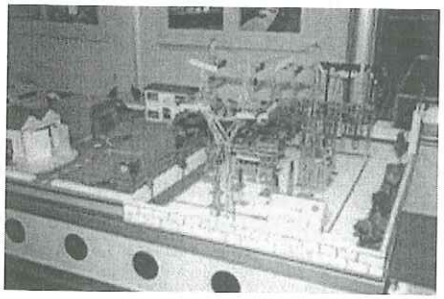
- Technology differs from science which studies a given environment independently of man's will. Technology creates an artificial environment according to the needs and interests of people, which are different in the various parts of earth. Students must learn processes and not specific solutions to technological problems.
- The artificial technological world is subject to rapid change. The technological knowledge which is in use today is becoming obsolete at a rate of 7% per year, which means that in 10 years we will use new technological knowledge completely. This means that teaching step-by-step technology does not have credit in our rapidly changing technological society.
- Technology manifests itself to produce more and more diversified products to meet the needs of different groups and individuals, with more and more interesting features, in a more and more efficient way. Students must learn to discover new developments and not just to repeat old procedures.

The Maryland Plan is a flexible program which may have different sets of objectives depending upon schedules and policies in the educational system, the teachers, and the students.

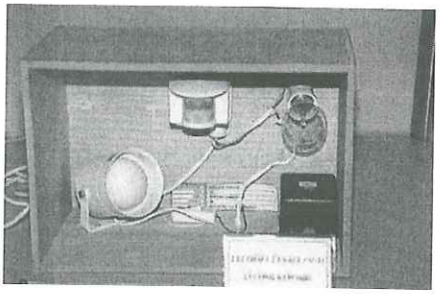
**Application of the Maryland Plan in Greek schools–energy conservation.**

Of particular importance in the Maryland Plan is the teaching methodology and the activities in which the students are involved. The teacher is a designer of learning experiences promoting the purposeful involvement of the students in the educational experience. The active student involvement expected in the Maryland Plan is indicated by requiring students to construct, compare, use, describe, apply, develop, carry out, solve, and interact as they complete the instructional activities.

The activities included in the Maryland Plan program are compatible with requirements presented at the "School-Enterprise cooperation" workshop made by CIDREE (Consortium of Institutions for Research and Development in Education in Europe), in Windsor, England, 1999. Some of the major topics discussed at the workshop as major curriculum elements for school enterprise cooperation were: financial understanding, financial competence, financial enterprise, financial responsibility, communication skills, ability to work with numbers, ability to solve problems, ability to use informational technology, ability to work with



**Application of the Maryland Plan in Greek schools–electricity production.**



**Application of the Maryland Plan in Greek schools–emergency systems.**

others. The above necessary contemporary skills are developed through the activities included in the Maryland Plan program.

## General Implementation Problems of the Maryland Plan in Greece

A number of problems were associated with the massive introduction of technology education into the Greek educational system and with the application of the Maryland Plan. In particular:

- The philosophy of the Maryland Plan is dominating the decision makers. However, there are still different views within the educational system as to the direction which technology should follow. Some feel that the new subject should constitute the 'vocational component' which is missing from general education. This population is not taking into consideration the needs of the contemporary informational society, as well as the lack of social credibility of a traditional type of vocational education in Greece. Another view which has many supporters among teachers of traditional subjects is that the new course should offer strictly 'hands on' experience. Traditional teachers are facing a threat from the new subject. Finally, there is the view that technology courses should be beyond the development of manual skills and should give the opportunity to each student to express, discover, and assess his/her talents and interests regarding technological concepts, contemporary devices, and materials. The Maryland Plan program provides the appropriate framework for the application of this last view which is compatible with the needs of contemporary informational society.
- The main problem of technology education in Greece is providing a laboratory in view of the school building shortage, which is more evident in the larger cities. Urban schools in Greece are overcrowded while rural schools are operating with small numbers of students. As a result it is not cost-effective to equip the schools in rural areas with contemporary equipment which is expensive by Greek standards.
- Some other problems are associated with the introduction of a non-traditional teaching method according to the Maryland Plan, which affected both teachers and students. It was difficult for the student to act independently, to draw a course of action, to gather and utilize a lot of informational resources, and to study and construct a project according to his/her data analysis. It was equally difficult for the teachers to act as facilitators of the students and as resource persons, particularly without any kind of appropriate training. The absence of a textbook according to the 'one book per subject' and to 'page-by-page' Greek instructional tradition, and its replacement with 'many informational resources' according to the Maryland Plan magnified the problems.
- The initial problem of the shortage of technical bibliography in appropriate forms started to be amplified as a result of the development of the World Wide Web (www). The schools are not yet connected to the world network. However, a lot of students and teachers have access to this, privately.
- A crucial problem is associated with teaching personnel for technology. As mentioned above, an elementary teachers' training program was initiated on the basis of the Maryland Plan by Dr. Iliadis at SELETE in 1979. However, SELETE (College preparing teachers for vocational schools) is a non-university institution at the tertiary level. This is a negative contribution to the image of the new subject. In addition, teachers from other traditional specialties facing unemployment (for example teachers of physics) try to take over the course without any kind of training relating to technology education as well as without appropriate technological background. University graduates from the various engineering specialties and from the field of agriculture, are also used as teaching personnel without any specific training in relation to the new subject. In order to face these problems, a proposition was made to the Ministry of Education for the establishment of a University department for technology education, preparing teachers as well as execu-

tives for the world of work. The proposal was initiated by Dr. Iliadis and finalized from a group composed of Dr. N. Alexandris (Vice President of the Pedagogical Institute as well as of the University of Pireas that time), Dr. L. Adamopoulos (permanent member of the Pedagogical Institute), Dr. G.Voutsinos (permanent member of the Pedagogical Institute) and Dr. Iliadis (permanent member of the Pedagogical Institute). The proposal was accepted by the Ministry of Education and the first group of students started studies at this department in the academic year 1999-2000. However, after changes at the University which resulted in the termination of Dr. Alexandris' vice-presidency, the group which made the initial proposal is no longer involved in the development of the new department or with the directions it will have in the near future.

## Future Plans

Technology education has been expanded to all general secondary schools in Greece for 7th, 8th, and 10th grade students, without appropriate laboratories, teaching personnel, teacher training university departments, appropriate informational resources, and infrastructure. In addition, a strong tradition in relation to 'teaching the basics' according to the Greek tradition dominates the Greek educational system.

However, the development of technology education is almost certain. About 500,000 students at various grades were involved each year in technology education activities within the dynamic framework of the Maryland Plan, since 1994. A sufficient experience has been already accumulated in all levels of the educational community, and a lot of parents and students as well as organizations are enthusiastic about technology education and the type of program applied. It is a new non-traditional subject making its impact in the Greek general education environment with strongly theoretical and academic traditional orientation.

A pilot project supervised by Dr. Iliadis and the Greek Pedagogical Institute for the introduction of technology education in primary education was started in 15 selected schools all over Greece in 1999. The program is compatible with the philosophy of the Maryland Plan.

All these developments will be continuously elaborated upon and improved, striving to develop an effective technological education framework for Greece, according to the needs of the information society of our times.

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