Projects and Products Portal for Leonardo da Vinci

New Approaches in Technology Training: Development and Integration of European Modules in Technology Education

TR/05/B/F/PP 178 009

http://www.adam-europe.eu/adam/project/view.htm?prj=6379

Project Information

Title: New Approaches in Technology Training: Development and Integration of European Modules in Technology Education

Project Number: TR/05/B/F/PP 178 009

Year: 2005

Project Type: Pilot Project, project with multiplying effect (2000-2006)

Status: completed

Country: TR-Turkey

Marketing Text: The project was proposed for the clarification of the interface between Technology Education and other disciplines. It is mainly oriented towards the current training needs and new qualification needs as well as developing a new common flexible modular training curriculum to be consistent with these needs. It involved the initial common approach and frame at European level.
MODULARTE defines its innovative character as;
a) Access to huge information (by the developed data base tools) gathered by the 7 partner countries in terms technology education in schools and in teacher training programs,
B) Propose a common European model frame for technology education by adapting some existing systems and integrating some other new facts to cope with the identified issues in the proposal,
c) Initiate a common tool system for the European frame that can be progressed by further studies and European projects,
d) Pushing “technology teacher training” into Bologna Process.

Summary: The upgrading of initial education and in-service training of teachers and trainers so that their knowledge and skills respond both to changes and expectations in the society, and to the varied groups they teach and train is a major challenge to the education and training systems over the next 10 years. Apart from these, national educational systems are politically influenced and providing European dimension becomes more important to overcome this issue. Thus, new European orientation towards generating education to cope with a technological world is strictly needed. Currently, international cooperation in the field of technology education is insufficient and no standardisation exist. Some approaches are based on engineering and/or poly-technical sciences and some other are on educational sciences. A cooperative strategy and collaborative concepts for technology education within the European Union should be developed to synthesise models for technology education and identify areas for possible cooperation. Thus, technology teacher education system should be based on (a) polyvalence of initial studies, which means to establish more flexibility in the first study years to open different professional options to the students and to help teachers to find employment opportunities outside the schools (b) closing gap between theory and practice and enhance practical competences by means of work related training programs / sandwich training programmes, (c) consecutive organisation of studies to be organised in modules with the integration and/or modification of ICT and work related training which promote teacher in service qualification (d) organisation of the modules in European dimension to provide the teaching staff and student mobility. In technology education programs, it is indispensable to educate teachers with a multidisciplinary approach. Thus, teacher who will be employed in this field must be familiar with not only teaching attributes but also with mechanical-vocational skills and technology. Therefore, a technology teacher shall be competent to identify, analyse and evaluate vocational and general technology and its dimensions closely and shall posses an extensive technical culture as well as occupational knowledge and skills. A technology teacher is expected not only to have adequate knowledge but also shift this knowledge into application with the best methods and to provide mediums of design/make and apply/evaluate for the students.

Description: As the summary of the MODULARTE outcomes, the followings can be highlighted:
• MODULARTE accepts the concept of “general technology” as a theory to reduce every technological process to the processing of matter, energy and information.
• To be consistent with the anticipated multi-aspect approach and for the

Project Information

clarification of the implications and consequences of technology, MODULARTE also defines “design” and “socio-technology” as the core components of the technology teacher training programme.
• The proposed model has been also integrated with the specific module “Didactics of Technology” providing an excellent framework in terms of learner-centred approach that fits comfortably with technology and design education

MODULARTE intensified on drawing out the European frame of the learning concepts and the expected learning outcomes to be a main base for the further European Cooperation. MODULARTE considered the outcome based approach for the proposed model and specified the cognitive learning outcomes clearly and unambiguously. We are completely in favour of comparability, transferability and transparency by focussing on Bologna Process.

The Steering Committee believes that, it has done its best for the effective management, organisation and planning of the project activities. As evidence; MODULARTE project has been included in the Compendium of 50 successful projects among the 1710 projects undertaken within the LdV Programme between 2000-2006 basing on its methods and compliance with Copenhagen and Maastricht criteria". We have also fulfilled our specific aim for “opening up Technology Education systems to a wider part of the world”. Besides, we have realised our other specific mission; “international cooperation among educational and training establishments on national and European basis” through the contact database systems, questionnaires; face to face contacts by the national coordinators, study visits and feedback mechanisms.

The project did strengthen the integration of the European dimension into the Technology Education. In this context, the training programme represents an important contribution to the development of effective TE training - tested on a full-scale basis. Apart from the partnership, the project has also activated a transnational panel of experts within Technology Education: moreover, the individual partner bodies have developed their expertise in improving the analysis and anticipation of skill requirements in order to provide the relevant training.

It is clear that MODULARTE has been an impressive venture that has shown vision, commitment and a high level of organisation, management and planning. It has made an excellent contribution to both European collaboration and to Technology Education.

Themes:	*** Quality *** Lifelong learning *** Recognition, transparency, certification *** Continuous training ** Utilization and distribution of results ** Sustainability ** ICT * Open and distance learning
Sectors:	*** Education ** Professional, Scientific and Technical Activities ** Information and Communication
Product Types:	material for open learning evaluation methods CD-ROM teaching material program or curricula others modules website
Product information:	a) Design of new flexible curricula in a modularised form for technology teacher

Project Information

training (available at the 20th month of the project, final users are students, teaching staff, educational and vocational programme planners, university and vocational school administrations, public authorities. Language of the whole curricula including the standard course descriptions are both in English and in the native languages of the partner countries - TR, CZ, DE, EL, ES, IT, BG-. The whole structure is available in the restricted part of the project web-site (http://www.modularte.gazi.edu.tr) . As well as that, the whole structure of the modules and course descriptions are printed on Master and DEMO CDs (in above mentioned languages) to be distributed to the target groups and national bodies in partner countries.

b) Two training materials on determined basic and characteristics courses as “General Technology – Energy Transformation” (from Module 2 “Systems and Processes”) and “General Technology - Information and Communication” (from Module 3 Information and Communication) They have been available at the 22nd month of the project, final users are students and teaching staff concerning technology education, language is English and interested partners are urged to translate the teaching material into their native languages after the end of the project. The medium is the official web-site of the project. As well as that, both training materials are printed on Master and DEMO CDs to be distributed to the target groups and national bodies in partner countries.

c) Two model training tools for two different modules: These modules were determined as the Basic of Constructing and ICT (networks). Both are available in internet medium under the project web-site. The language is English. The final users are the students and the technology teachers.

d) Contact database of the national bodies, vocational schools, professional institutions and educational institutions regarding technology education: These databases are available since the end of February 2006. The medium of the database is the official web-site and will be kept after the official end of the project as a basis of the technology education forum.

e) Detailed country report databases about the current status and content of the technology teacher training and the technology and equivalent courses in schools. Available as of July 2006 and final users are project consortium, teaching staff, educational and professional organisations, national authorities and all other related and interested parties. Individual country reports are both in English and in the native language of the partner countries. Main medium is the web-site of the project. The DEMO and Master CDs were also produced to be distributed to the related parties.

f) Questionnaires prepared in seven different scopes of technology education located on special database of the project web-site as of May 2006, and the statistics of the given replies to the Questionnaires by the contact databases of the partner countries (located online in a dynamic way on the special database of the project as of June 2006)

g) Questionnaire statistics applied online to the contact database members of the partner countries. Available on the web-site of the project distributed into each partner country and the different categories of the questionnaire.

g) The book “Introduction to Didactics of Technology” as the guidance for the in-service training of the technology education teachers considering the modules obtained within the project. The proposed teacher training model in MODULARTE has been integrated with the specific module “Didactics of Technology” (Module 5) that focuses on developing technology educators and provides a framework in respect of learning. It lays a very strong foundation in terms of a learner-centred approach that sits comfortably with technology education. "Building a theory and setting it in relation to practical experience" ... "process concerning reality" ... "theoretical base"

Project Information

... "active didactives" all suit well the purposes of creating a technology teacher – and have the double value of providing a good model of learning for becoming a technologist as well. The guiding principles provided (student-orientation; activity-orientation; problem-orientation; integrative approach; scientific-orientation; differentiation; working on projects; interdisciplinary working; openness) and theories of learning (cognitivism; constructivism) create a highly effective framework within which to develop understandings and approaches to technology education. Flexible learner centred approaches to teaching and learning sequences, developmental approach, active learning, self-determination, authenticity, learning in a social context are all highlighted through this module. It provides guiding principles not just for how learning and teaching technology should be organised in schools but also in higher education. It contains the bandwidth of methods and fundamentals of teaching technology.

Projecthomepage: http://www.modularte.gazi.edu.tr

Project Contractor

Name:	Gazi University Department of Industrial Technology Education
City:	Ankara
Country/Region:	Ankara
Country:	TR-Turkey
Organization Type:	university/Fachhochschule/academy
Homepage:	http://www.ete.gazi.edu.tr

Contact Person

Name:	Prof. Dr. H. Güçlü Yavuzcan
Address:	Gazi University Department of Industrial Technology Education
City:	Ankara
Country:	TR-Turkey
Telephone:	00903124851877
Fax:	00903124853124
E-mail:	yavuzcan@ttmail.com
Homepage:	http://w3.gazi.edu.tr/~gyavuzcan/

Coordinator

Name:	Gazi University Department of Industrial Technology Education
City:	Ankara
Country/Region:	Ankara
Country:	TR-Turkey
Organization Type:	university/Fachhochschule/academy
Homepage:	http://www.ete.gazi.edu.tr

Contact Person

Name:	Prof. Dr. H. Güçlü Yavuzcan
Address:	Gazi University Department of Industrial Technology Education
City:	Ankara
Country:	TR-Turkey
Telephone:	00903124851877
Fax:	00903124853124
E-mail:	yavuzcan@ttmail.com
Homepage:	http://w3.gazi.edu.tr/~gyavuzcan/

Partner

Partner 1

Name: Higher School of Transport
City:
Country/Region: Sofia Stolitsa
Country: BG-Bulgaria
Organization Type: university/Fachhochschule/academy
Homepage:

Partner 2

Name: Euroface Consulting
City:
Country/Region: Stredni Cechy
Country: CZ-Czech Republic
Organization Type: SME - small and medium-sized enterprise (up to 250 employees)
Homepage:

Partner 3

Name: ARIES Formazione
City:
Country/Region: Toscana
Country: IT-Italy
Organization Type: others
Homepage:

Partner 4

Name: CVT Gergixi Anaptixi
City:
Country/Region: Ionia Nisia
Country: EL-Greece
Organization Type: research institution
Homepage:

Partner

Partner 5

Name:	Consortia
City:	
Country/Region:	Andalucia
Country:	ES-Spain
Organization Type:	continuing training institution
Homepage:	

Partner 6

Name:	University of Duisburg Essen Department of Technology Education
City:	
Country/Region:	Nordrhein-Westfalen
Country:	DE-Germany
Organization Type:	university/Fachhochschule/academy
Homepage:	

Project Files

44-56.pdf

http://www.adam-europe.eu/prj/6379/prj/44-56.pdf

Valorisation Handbook Part 2

57-63.pdf

http://www.adam-europe.eu/prj/6379/prj/57-63.pdf

Valoisation Handbook Part 3

64-75.pdf

http://www.adam-europe.eu/prj/6379/prj/64-75.pdf

Valoisation Handbook Part 4

7-43.pdf

http://www.adam-europe.eu/prj/6379/prj/7-43.pdf

76-85.pdf

http://www.adam-europe.eu/prj/6379/prj/76-85.pdf

Valoisation Handbook Part 5

86-91.pdf

http://www.adam-europe.eu/prj/6379/prj/86-91.pdf

Valoisation Handbook Part 6

92-94.pdf

http://www.adam-europe.eu/prj/6379/prj/92-94.pdf

Valoisation Handbook Part 7

95-112.pdf

http://www.adam-europe.eu/prj/6379/prj/95-112.pdf

Valorisation Handbook Part 8

Didactics of Technology.pdf

http://www.adam-europe.eu/prj/6379/prj/Didactics%20of%20Technology.pdf

Didactics of Technology

Products

1 New flexible modular curricula

2 Training materials

3 Training tools

4 Country report database

5 Project Handbook

6 Introduction to Didactics of Technology

Product 'New flexible modular curricula'

Title:	New flexible modular curricula
Product Type:	modules
Marketing Text:	Design of new flexible curricula in a modularised form for technology teacher training
Description:	The whole structure is available in the restricted part of the project web-site.
Target group:	Students, teaching staff, educational and vocational programme planners, university and vocational school administrations, public authorities
Result:	
Area of application:	
Homepage:	http://www.modularte.gazi.edu.tr
Product Languages:	Turkish Spanish Greek Czech German English Bulgarian Italian

Product 'Training materials'

Title:	Training materials
Product Type:	teaching material
Marketing Text:	Two training materials on determined basic and characteristics courses as “General Technology – Energy Transformation” (from Module 2 “Systems and Processes”) and “General Technology - Information and Communication” (from Module 3 Information and Communication)
Description:	
Target group:	Students and teaching staff
Result:	
Area of application:	
Homepage:	http://www.modularte.gazi.edu.tr
Product Languages:	English

Product 'Training tools'

Title:	Training tools
Product Type:	material for open learning
Marketing Text:	Two model training tools for two different modules: These modules were determined as the Basic of Constructing and ICT (networks).
Description:	
Target group:	Students and the technology teachers
Result:	
Area of application:	
Homepage:	http://www.modularte.gazi.edu.tr
Product Languages:	English

Product 'Country report database'

Title:	Country report database
Product Type:	procedure for the analysis and prognosis of the vocational training requirement
Marketing Text:	Detailed country report databases about the current status and content of the technology teacher training and the technology and equivalent courses in schools.
Description:	In the restricted part of the project web site.
Target group:	Students, teaching staff, educational and vocational programme planners, university and vocational school administrations, public authorities
Result:	
Area of application:	
Homepage:	http://www.modularte.gazi.edu.tr
Product Languages:	Italian Greek Turkish Spanish Czech Bulgarian German English

Product 'Project Handbook'

Title:	Project Handbook
Product Type:	others
Marketing Text:	The project activities and results together with the internal and external evaluation reports are arranged in a form of a handbook that included the related papers as well as some invited papers from the technology education experts
Description:	
Target group:	Students, teaching staff, educational and vocational programme planners, university and vocational school administrations, public authorities
Result:	
Area of application:	
Homepage:	http://www.modularte.gazi.edu.tr
Product Languages:	English

Product 'Introduction to Didactics of Technology'

Title: Introduction to Didactics of Technology

Product Type: evaluation methods

Marketing Text: The book “Introduction to Didactics of Technology” as the guidance for the in-service training of the technology education teachers considering the modules obtained within the project.

Description: The proposed teacher training model in MODULARTE has been integrated with the specific module “Didactics of Technology” (Module 5) that focuses on developing technology educators and provides a framework in respect of learning. It lays a very strong foundation in terms of a learner-centred approach that sits comfortably with technology education. "Building a theory and setting it in relation to practical experience" ... "process concerning reality" ... "theoretical base" ... "active didactives" all suit well the purposes of creating a technology teacher – and have the double value of providing a good model of learning for becoming a technologist as well. The guiding principles provided (student-orientation; activity-orientation; problem-orientation; integrative approach; scientific-orientation; differentiation; working on projects; interdisciplinary working; openness) and theories of learning (cognitivism; constructivism) create a highly effective framework within which to develop understandings and approaches to technology education.

Target group: Technology teachers

Result: Flexible learner centred approaches to teaching and learning sequences, developmental approach, active learning, self-determination, authenticity, learning in a social context are all highlighted through this module. It provides guiding principles not just for how learning and teaching technology should be organised in schools but also in higher education. It contains the bandwidth of methods and fundamentals of teaching technology.

Area of application:

Homepage: http://www.modularte.gazi.edu.tr

Product Languages: