Projects and Products Portal for Leonardo da Vinci

Education and Training in Fuel Cell-Heaters

DE/10/LLP-LdV/TOI/147338

http://www.adam-europe.eu/adam/project/view.htm?prj=6926

Project Information

Title:	Education and Training in Fuel Cell-Heaters
Project Number:	DE/10/LLP-LdV/TOI/147338
Year:	2010
Project Type:	Transfer of Innovation
Status:	completed
Country:	DE-Germany
Marketing Text:	Fuel cell technology is a new technology and still little-known. Further information and provision of training offers for fuel cell usage and applications are required. To close the informational and educational gap, didactic materials for the target group of “disseminators“ (teachers and trainers) were designed and developed.
Summary:	Central to the project for education and training in fuel cell-heaters was that a usable module “fuel cell-heaters“ be developed. Fuel cell-heaters are the most effective form of combined heat and power (CHP). In the CHP process, a defined amount of useful energy requires a lot less primary energy and also high efficiency rates cause less CO2 to be emitted. Qualified professionals are required for the implementation of this technology. The module “Fuel cell-heaters“ can be found in the curriculum framework alongside the previously designed basic and bridging modules. Qualifications and competencies have been identified for the sale, installation and ongoing operation of fuel cell-heaters.

Description: The objectives of the project are as follows:

1) To provide the target group of “disseminators“ with the topics, content, materials and media for education and training in fuel cell-heaters. Provision of training must be offered no later than the commencement of market entry. Development is based on the gradual approach of the curriculum “fuel cell-heaters“ which is rounded off and completed with the application module.

2) Transfer of the programme in the participating partner countries involved in the project should take account of local circumstances. In EU countries there are specific conditions for vocational eduation and training as well as for industry and the professions. Thus partners need to adapt the application module in the technical, methodological and organisational spheres.

3) An additional objective (as a result of the two previous projects) is the pedagogical evaluation on introducing a technical innovation. To date Leonardo da Vinci has assisted in monitoring and documenting at every stage from a pedagogical standpoint, the development and introduction of the innovative “fuel cell-heater“. Accordingly, a study on the contribution to the theory of vocational education in the development and introduction of the technological innovation fuel “cell-heaters“ has been compiled.

4) The homepage "www.fuelcellknowhow.com" describes both the process of developing the application module as well as documenting the relationship of the basic, bridging and application modules.

The product impact is as follows:

- As a central feature in crafts education the “customer order “ has stabilized and finds more and more approval within the European countries.
- Because of the demand regarding fuel cell heaters, the vocational and further education is also in demand. Hereunto a wide range of materials according education on fuel cell heaters is available now. They where developed under recognizing the actual vocational-pedagogical standards and the multimedia possibilities.
- It is presented understandably, how the implementing of the innovative fuel cell technology was promoted by the vocational pedagogical measures.

Project Information

	Generally, it is to assume that the time of using fuel cells on a grand scale is still to come. With the ZuHause-products a sustainable offer is available for the vocational and further education.
Themes:	*** Labor market *** Continuous training *** Initial training ** Sustainability
Sectors:	*** Electricity, Gas, Steam and Air Conditioning Supply ** Manufacturing ** Education * Activities of Households as Employers; Undifferentiated Goods- and Services-Producing Activities of Households for Own Use
Product Types:	description of new occupation profiles website teaching material procedure for the analysis and prognosis of the vocational training requirement modules material for open learning
Product information:	Training courses for qualification in the field of fuel cell-heaters have been compiled.
Projecthomepage:	http://www.fuelcellknowhow.com

Project Contractor

Name:	Forschungsgruppe Praxisnahe Berufsbildung, Universität Bremen
City:	Bremen
Country/Region:	Bremen
Country:	DE-Germany
Organization Type:	university/Fachhochschule/academy
Homepage:	http://www.fpb.uni-bremen.de

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Coordinator

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Country:	DE-Germany
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Partner

Partner 1

Name:	Handwerkskammer Osnabrück-Emsland
City:	Osnabrück
Country/Region:	Weser-Ems
Country:	DE-Germany
Organization Type:	chamber
Homepage:	http://www.hwk-os-el.de

Partner 2

Name:	Modern Learning GmbH, Bildung mit neuen Medien
City:	Berlin
Country/Region:	Berlin
Country:	DE-Germany
Organization Type:	SME - small and medium-sized enterprise (up to 250 employees)
Homepage:	http://www.modernlearning.de

Partner 3

Name:	LVH Bildung & Service Gen.
City:	Bozen
Country/Region:	Provincia Autonoma Bolzano/Bozen
Country:	IT-Italy
Organization Type:	employers' organisation
Homepage:	http://www.lvh.it/

Partner 4

Name:	Dublin Institute of Technology
City:	Dublin
Country/Region:	Dublin
Country:	IE-Ireland
Organization Type:	research institution
Homepage:	http://www.dit.ie

Partner

Partner 5

Name: Kenteq
City: Hilversum
Country/Region: Noord-Holland
Country: NL-Netherlands
Organization Type: SME - small and medium-sized enterprise (up to 250 employees)
Homepage: http://www.kenteq.nl

Partner 6

Name: Kaunas Regional Innovation Centre
City: Kaunas
Country/Region: Latvija
Country: LV-Latvia
Organization Type: association/non-governmental organisation
Homepage: http://www.ic.ktc.lt

Partner 7

Name: FRAEMA
City: Almendralejo
Country/Region: Extremadura
Country: ES-Spain
Organization Type: SME - small and medium-sized enterprise (up to 250 employees)
Homepage: http://www.fraema.com

Partner 8

Name: Aspremetal
City: Badajoz
Country/Region: Extremadura
Country: ES-Spain
Organization Type: employers' organisation
Homepage: http://www.aspremetal.net

Project Files

Result_1_educational-training_DE.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_1_educational-training_DE.pdf

Result 1: Education and Training in Fuel Cell-Heaters. Training Guidelines for Work and Business Processes - German Version

Result_1_educational-training_EN.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_1_educational-training_EN.pdf

Result 1: Education and Training in Fuel Cell-Heaters. Training Guidelines for Work and Business Processes - English Version

Result_1_educational-training_ES.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_1_educational-training_ES.pdf

Result 1: Education and Training in Fuel Cell-Heaters. Training Guidelines for Work and Business Processes - Spanish Version

Result_1_educational-training_IT.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_1_educational-training_IT.pdf

Result 1: Education and Training in Fuel Cell-Heaters. Training Guidelines for Work and Business Processes - Italian Version

Result_1_educational-training_LT.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_1_educational-training_LT.pdf

Result 1: Education and Training in Fuel Cell-Heaters. Training Guidelines for Work and Business Processes - Lithuanian Version

Result_1_educational-training_NL.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_1_educational-training_NL.pdf

Result 1: Education and Training in Fuel Cell-Heaters. Training Guidelines for Work and Business Processes - Dutch Version

Result_2_Version_LT.rar

http://www.adam-europe.eu/prj/6926/prj/Result_2_Version_LT.rar

Result 2: Lithuanian Version of LS 01 - LS 07.

Result_2_Version_NL.rar

http://www.adam-europe.eu/prj/6926/prj/Result_2_Version_NL.rar

Result 2: Dutch Version of LS 01 - LS 07.

Result_4_Study_KaunasRegional.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_4_Study_KaunasRegional.pdf

Result 4: Study Kaunas Regional Innovation Center - Lithuania.

Result_4_Study_Kenteq.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_4_Study_Kenteq.pdf

Result 4: Study Kenteq - Netherlands.

Result_4_Study_LVH.pdf

http://www.adam-europe.eu/prj/6926/prj/Result_4_Study_LVH.pdf

Result 4: Study Associazione Provinciale dell'Artigianato - Italy.

Products

1 The sales order "Installation and operation of a fuel cell-heater "

2 Disseminators material for education and training in fuel cell-heaters

3 Website „www.fuelcellknowhow.com“

4 Study on the importance of vocational educational theory for technically innovative projects

Product 'The sales order "Installation and operation of a fuel cell-heater "'

Title:	The sales order "Installation and operation of a fuel cell-heater "
Product Type:	teaching material
Marketing Text:	The sales order shows teaching staff the reality of working and business processes when selling, installing and operating fuel cell heaters. It provides central orientation for the qualification activities provided in learning situations.
Description:	The brochure: "The sales order – Installation and operation of fuel cell heaters Work and business processes as guidelines in vocational training" is structured as follows: - Work and business processes surrounding fuel cell heaters - The customer order as a model showing working activities in the manual crafts - Installing and operating a fuel cell heater. This brochure is used to demonstrate and prepare the "Training in and on the customer order" learning concept - which has proved its worth in training and further training courses in Germany - for the purposes of transfer to the partner countries.
Target group:	teachers, trainers, tutors in vocational education and training.
Result:	The brochure is available in all languages of the partner countries. The versions have been entered under "Files".
Area of application:	For usage in vocational education and training.
Homepage:	http://www.fuelcellknowhow.com
Product Languages:	Spanish Lithuanian Dutch English Italian German

Product 'Disseminators material for education and training in fuel cell-heaters'

Title:	Disseminators material for education and training in fuel cell-heaters
Product Type:	teaching material
Marketing Text:	The teaching schedules for systems mechanics in the areas of sanitary, heating and air conditioning as well as those for electrical engineering technicians in the area of building utilities and energy management intend to include fields of learning in which the materials can be put to use. The materials will be available in Germany from a publisher. The partner countries will proceed differently here.
Description:	The materials provided comply with modern know-how and the media available for teaching vocational training courses. The training and further training courses were developed and designed along the following lines: (1) Fuel cell heaters mean a considerable step forward both in terms of energy efficiency and the avoidance of or reduction in emissions. Fuel cell heaters have brought about a boost to employment in the manual crafts. (2) As teaching schedules are oriented towards the respective field of learning and are realised in learning situations in line with work and business processes, the courses are very close to real practices at work. (3) The experience that the project partners have gained over years in the development and design of training and further training materials for teachers and trainers was implemented methodically, didactically and using multimedia.
Target group:	teachers, trainers, tutors in vocational education and training.
Result:	The following learning situations emerged on the basis of the customer order being dealt with here: - Requirements and conditions for the use of fuel cell heaters: competent qualified personnel - Setup of fuel cell heaters and how they work - Planning and design of fuel cell heaters - Installing fuel cell heaters and connecting them to the building utilities - First-time operation of the fuel cell heater and optimising its operational state - Assessing the installation and operation of fuel cell heaters - Maintaining and servicing fuel cell heaters. The materials are published at the end of the project.
Area of application:	The materials are beeing used by teachers, trainers and tutors in vocational education and training.
Homepage:	http://www.fuelcellknowhow.com
Product Languages:	Dutch Lithuanian English German Spanish

Product 'Website „www.fuelcellknowhow.com“'

Title:	Website „www.fuelcellknowhow.com“
Product Type:	website
Marketing Text:	Via the "www.fuelcellknowhow.com" website, interested parties can also follow the development and design process of ZuHause even after project completion.
Description:	Fuel cell technology and its application in building facilities is still new and therefore relatively unknown. The www.fuelcellknowhow.com website still seems to be well-suited to meet the current information and qualification needs. As documentation, the website also presents the basic module (ZuHause 1) as well as the bridging model (ZuHause 2) and deals specifically with the process of developing the ZuHause 3 products. What is presented on the website makes clear the contribution to developing the capabilities and competences of teaching staff, trainers and advisors in vocational training and further training using fuel cell heaters as an example.
Target group:	General and professional public.
Result:	The website for ZuHause 3 has been completed and is to be maintained. The ZuHause 1 (2005-2007) and ZuHause 2 (2008 - 2010) websites will also continue to exist.
Area of application:	Public and thus for all accessable.
Homepage:	http://www.fuelcellknowhow.com
Product Languages:	Dutch Lithuanian Spanish German Italian English

Product 'Study on the importance of vocational educational theory for technically innovative projects'

Title:	Study on the importance of vocational educational theory for technically innovative projects
Product Type:	others
Marketing Text:	In Germany and in other European countries, technical innovations (for example, the fax machine, MP3, Transrapid, etc.) have failed in the past. Taking fuel cell heaters as an example, activities for teaching in vocational training that help to promote the success of technical innovations are highlighted and explained
Description:	The development of fuel cell heaters has been followed continuously in Leonardo da Vinci projects since 2005. The ZuHause 1 (development of a basic module to cover the need for information) and the ZuHause 2 (provision of bridging technologies for fuel cell heaters) and ZuHause 3 (application module as a qualification course) projects compile the temporal and technical processes of fuel cell heaters from trials right up to market maturity. From this, conclusions were drawn about the importance of educational methods in vocational training for innovation processes.
Target group:	Teachers, developers, professionals.
Result:	The study is already available.
Area of application:	Interesting for everyone who is interested in implementing technical innovations and/or involved in this. Interested parties should contact the FPB.
Homepage:	http://www.fuelcellknowhow.com
Product Languages:	Dutch Spanish Lithuanian German English

Events

3rd and final meeting ZuHause 3

Date	03.07.2012
Description	The partners had a final meeting at Kenteq in Hilversum (NL). The following points were on the agenda: 1) Standing orders 2) Final report 2.1) Finances 2.2) Contents and subjects 2.3) Dissemination 2.4) Appointments and agreements 3) Products and outcomes 3.1) Customer order: “Installing and operating a fuel cell heater” (R 1) 3.2) Training and further training course: “Fuel cell heaters” (R 2) 3.3) The “fuelcellknowhow” website (R 3) 3.4) Study on teaching innovation management in vocational training (R 4) 3.5) Utilisation strategies 4) ADAM database 5) Miscellaneous
Target audience	Project partners.
Public	Event is open to the public
Contact Information	-
Time and place	3rd july to 6th july 2012 in Hilversum (NL).

Events

Bundesweite Fachtagung KWK – Kraft-Wärme-Kopplung

Date	10.11.2011
Description	Am 10. und 11. November 2011 fand in Osnabrück die Fachtagung "Energiewende mit Mikro-KWK, Herausforderung für das Fachhandwerk und die berufliche Bildung" statt. Die enormen energetischen Vorteile von KWK-Anlagen (BHKW und Brennstoffzellen-Heizgeräte) wurden aufgezeigt und dargestellt. Das Programm und Einzelheiten zur Fachtagung sind auf der Seite des AKVT (www.akvt.de/ft2011/) dargestellt. Siehe dort auch die Dokumentation der Tagung unter dem Menüpunkt "Tagungsunterlagen".
Target audience	Lehrkräfte / Fachkräfte / Auszubildende / weitere Berufe mit Bezug zu KWK.
Public	Event is open to the public
Contact Information	Forschungsgruppe Praxisnahe Berufsbildung Universität Bremen Wilhelm-Herbst-Straße 5 28359 Bremen
Time and place	Handwerkskammer Osnabrück-Emsland Bramscher Straße 134-136, 49088 Osnabrück 10./11. November 2011 Die Fachtagung wurde organisiert vom Arbeitskreis Versorgungstechnik und in Zusammenarbeit mit der Handwerkskammer Osnabrück-Emsland, und der Deutschen Bundesstiftung Umwelt (DBU) durchgeführt. Alle weiteren Informationen finden Sie auf der Homepage des AKVT: www.akvt.de

Events

2nd Workshop ZuHause 3

Date	13.09.2011
Description	Zur Durchführung des 2. Workshops in ZuHause 3 trafen sich am 13. und 14. September 2011 die Partner beim Dublin Institute of Technology in Dublin. Gearbeitet wurde über folgende Themen: 1. Regularies 2. Concluson and assessment ZuHause 2 3. Overview ZuHause 3: status of work packages and schedule 4. Website 5 Chats 6. Interim report (financial and contentual part, deadlines/appointments) 7. Status ZuHause 3 print media/products 8. Status learning situation and educational situation 9. Dissemination plan 10. Thoughts on uniformed products of ZuHause 1 to ZuHause 3 (corporate identity) 11. AOB (next workshop) Alle Partner haben am Treffen teilgenommen.
Target audience	Projektmitglieder
Public	Closed event
Contact Information	Toutes les partenaires ont participé au meeting.
Time and place	13.09 und 14.09.2011 beim Dublin Institute of Technology, Dublin, Irland

Events

Kick-off meeting ZuHause 3

Date	17.01.2011
Description	Am 17. und 18. Januar 2011 fand bei der LVH in Bozen (Italien) der Auftaktworkshop statt. Auf der Tagungsordnung standen: 1. Formalities 2. Planned Project Results, Work packages and Project workflow in the overview. 3. Finances and Project Administration 4. ADAM-Database (official Languages and Partner Countries) 5. Website "ZuHause 3" 6. Milestone 1: Customer offer "Installation and Operation of a Fuelcell-Heater" 7. Milestone 2: Learn situation - Development and Organization/Composition 8. Guarantee from each partner that they have staff with professional competences for seminar offers "ZuHause 3" 9. Scheduling chat dates, Telefphone-Conferences – Workshops 10. Others Einzelheiten sind bei Interesse über das Protokoll erfahrbar. Alle Partnereinrichtungen in ZuHause 3 waren beim Treffen vertreten.
Target audience	Projektmitglieder
Public	Closed event
Contact Information	Consulter le compte-rendu pour obtenir de plus amples détails. Tous les établissements partenaires de ZuHause 3 ont participé au meeting.
Time and place	17.01. und 18.01.2011 bei der LVH Bolzano in Bozen, Südtirol, Italien.