UNIVERSITY OF IOANNINA

Education and Culture DG

Lifelong Learning Programme

ERASMUS INTENSIVE PROGRAMMES

THE LIGHT PROJECT

University of Ioannina

Coordinator: Katerina Plakitsi

N.A.- I.K.Y.

L.L.P.- ERASMUS

10/12/2010

From the starlight to the flame of hope

UNIVERSITY OF IOANNINA

Education and Culture DG

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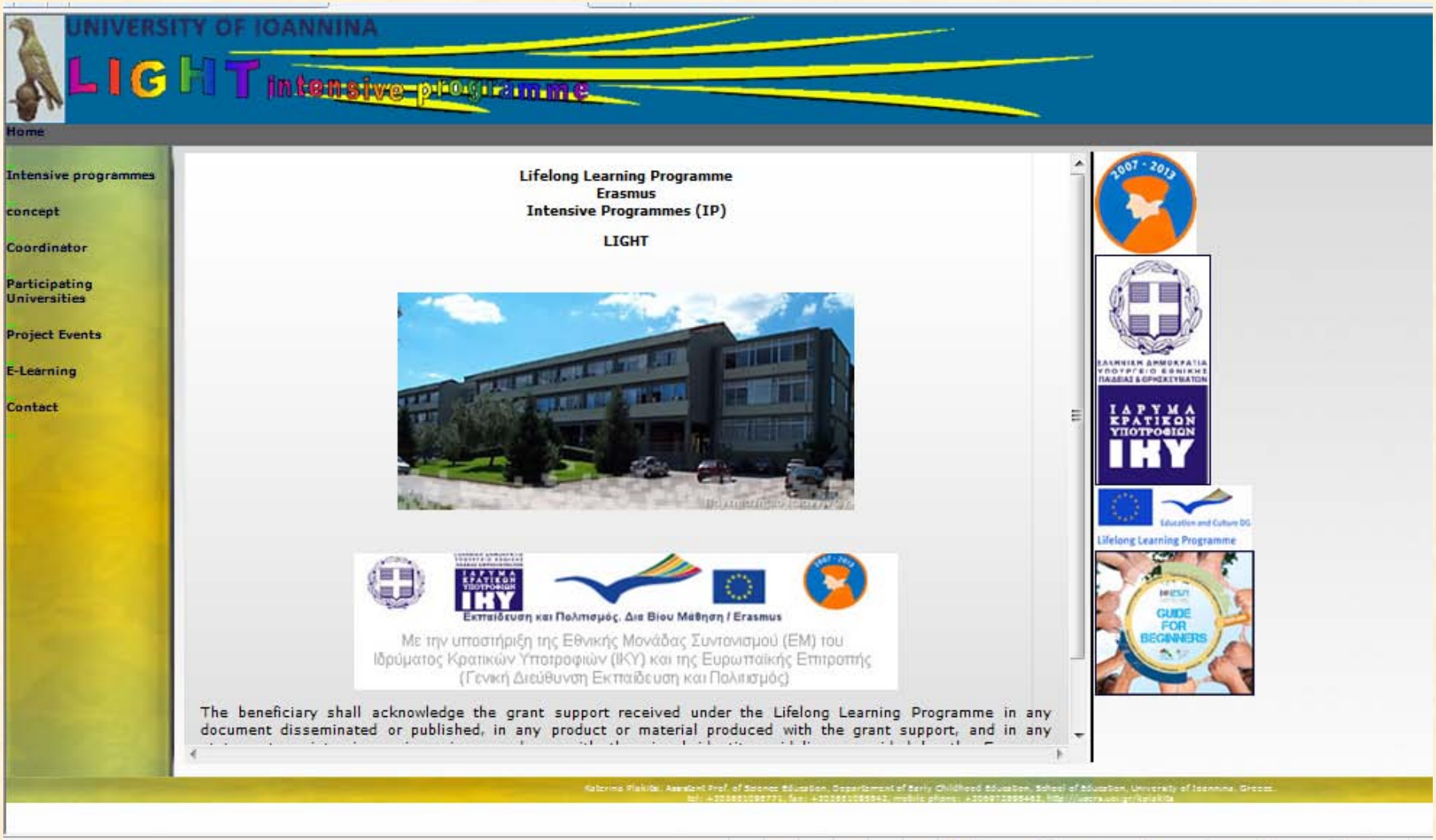
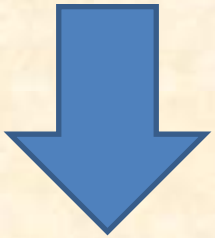
ERASMUS INTENSIVE PROGRAMMES

http://erasmus-ip.uoi.gr



The “LIGHT” project



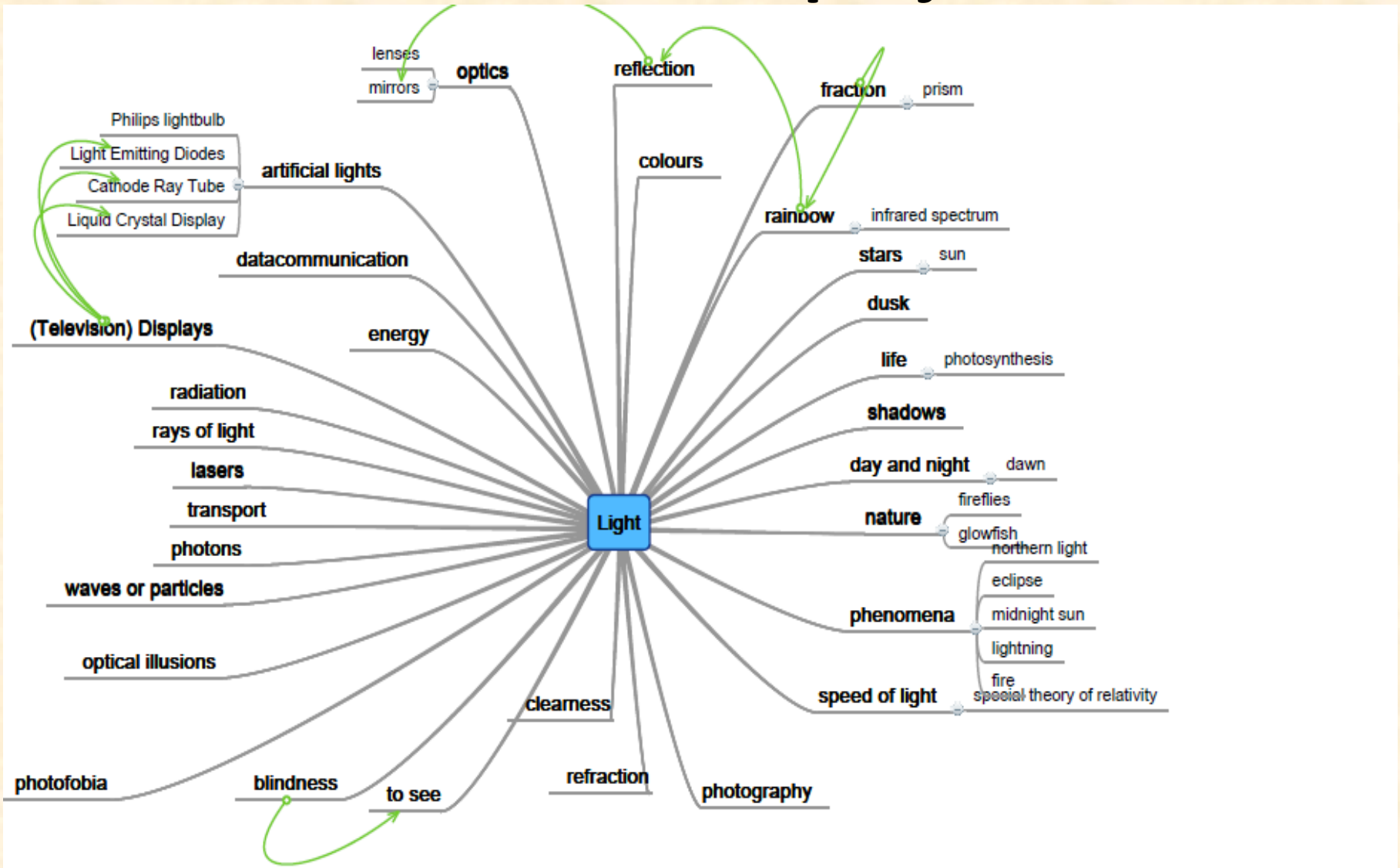
- **The “LIGHT” project is a basis for the development of common undergraduate curricula since it will develop one of them.**
- **It promotes co-operation between Universities and Enterprises, as science museums, science centres and environmental parks under the scope “science for all citizens”**
- **Aims to invest on ICT affordances for interactive communication through a website, using teaching of light for exchanging experiences and innovative ideas relating to science content, services, pedagogies and practices, materials, and equipment.**

The “LIGHT” project

- brings a high contribution to the area of cultural studies of science education.
- gives evidence of full recognition and credits to the activities by the participating institutions.
- presents a strong multidisciplinary approach (“hundred skills” approach). This approach grasps the gap between science and culture.
- uses ICT tools and services (website and dvd) to support the preparation and follow-up of the Intensive Programme.
- It has strong multidisciplinary approach-cooperation of different HEI departments, as includes i)science education, ii)environment, iii) state of the art technology (website, dvd, technologies of light) and iv)languages (myths for light, words, etc.).
- It supported the realisation of a European area for cultural studies in science education by the use of cultural-historical-activity theory.
- Contributed to social cohesion, active citizenship, intercultural dialogue, gender equality and personal fulfilment was reinforced.

- It helped improve the quality and attractiveness of the opportunities of ERASMUS project within member states.
- It promoted creativity, competitiveness, employability and the growth of an entrepreneurial spirit via the innovative pedagogical approaches.
- It supported the development of innovative ICT-based content, services, pedagogies and practice for teaching and learning.
- It reinforced the role of ERASMUS project in creating a sense of European citizenship based on understanding and respect for human rights and democracy.
- It encouraged the best use of results, innovative products and processes and exchanged good practice via ERASMUS project.
- It contributed to increased participation in lifelong learning by people of all ages, including those with special needs and disadvantaged groups, regardless of their socio-economic background.

The “LIGHT” project



Coordinator: **UNIVERSITY OF IOANNINA, GREECE**

Partners:

- **UNIVERSITY OF NAPLES: ITALY**
- **UNIVERSITY OF CYPRUS: CYPRUS**
- **UNIVERSITY OF EINDHOVEN: THE NETHERLANDS**
- **LINNAEUS UNIVERSITY: SWEDEN**
- **UNIVERSITY OF MINHO: PORTUGAL**
- **ST. PATRICK'S COLLEGE (A COLLEGE OF DUBLIN CITY UNIVERSITY): IRELAND**

1. University of Ioannina

Katrina Plakitsi

Assistant Professor of Science Education,

University of Ioannina, Greece

The @FISE Group (**A**ctivity **T**heory in **F**ormal and **I**nformal Science **E**ducation) focuses on:

- Applying cultural historical activity theory (CHAT) in formal and informal science education.
- Rethinking scientific literacy.
- Rethinking the role of Information and Communication Technologies.

Group of Ioannina

- Practice work in the field of LIGHT-Observing the night sky in the University Campus of Ioannina through special equipment. – National Observatory of Athens.

- 1st WORKSHOP – Leader: University of Ioannina.

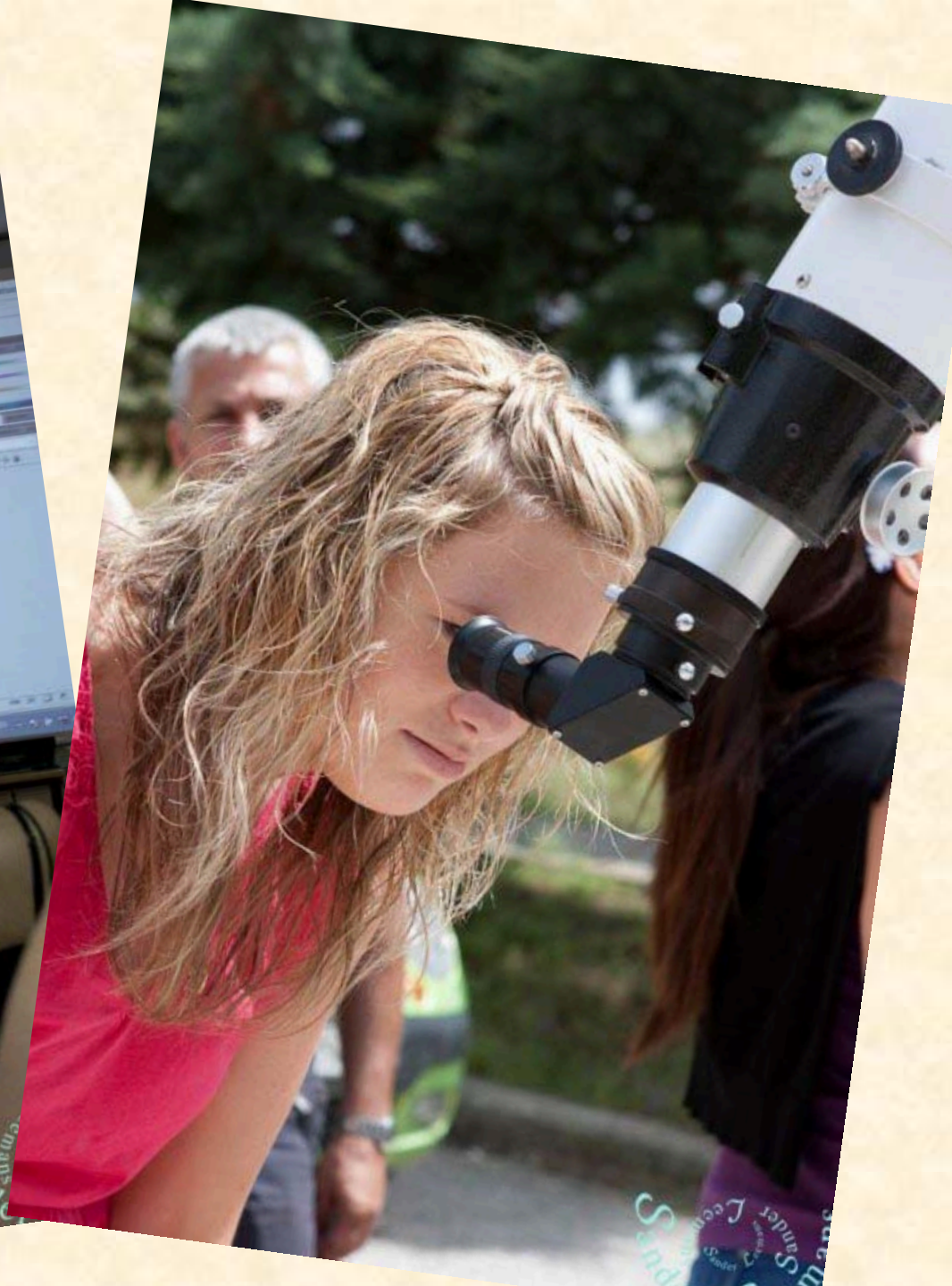
- Practice work in the field of LIGHT- Observing the night sky in the University Campus of Ioannina through special equipment-Amateur astronomers.

- Video seminar-Field work in the University Campus of Ioannina-Sun observation-Amateur astronomers.

Practice work in the field of LIGHT-Observing the night sky in the University Campus of Ioannina through special equipment. – National Observatory of Athens.

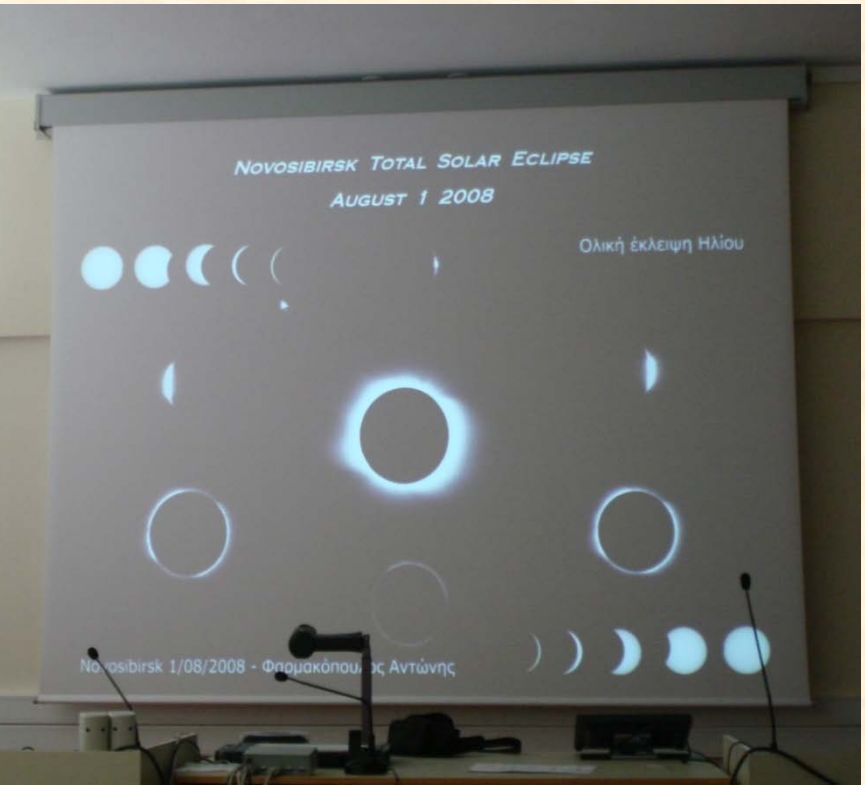
Observation

- Planet Saturn (ring system, stellites)
- Planet Venus (phases of planet, planet surface)
- Moon (craters)
- Double and multiple stars: Alcor and Mizar, Albireo (beta Cygni), Cor Caroli, epsilon Lyray, Castor (alpha Geminorium)
- Star Clusters: M13 Hercules
- Nebulae:M57 Ring, M27 Dumbell
- Star gazing activity: finding Polaris, The North star, with the aid of “guide stars” of Ursa Major



1st Workshop :University of Ioannina

- Part 1: Total Solar Eclipses and the Corona- Viewing the sun with the naked eye (Novosibiric, RU in 2008 and Shanghai, CN in 2009)
- Part 2: observing the upper layers of the Sun from our schoolyard (photosphere- chromosphare),(observations of the Sun with telescopes).



2. University of Naples, Emilio Balzano

- Science in society
- Science education in science museums
- Science education in science centers
- The topic of light in science museums & centers
- Teaching Uncertainity and Risk in Science
- Scientist involvement in educational activities
- Use, analysis of scientific news in didactics
- Cross curricula design

2nd Workshop: University of Naples

- to promote scientific knowledge and reasoning about light at the elementary school level teachers are required to support students in activating prior knowledge;
- the observation of light phenomena provides a rich context to understand what we know about how people and students learn;
- children have skills and concepts relevant to mathematics learning that are present early in life. The knowledge and interest that children show about space including shapes and spatial relations provide an important opportunity for parents and teachers to help them develop their understanding of geometry

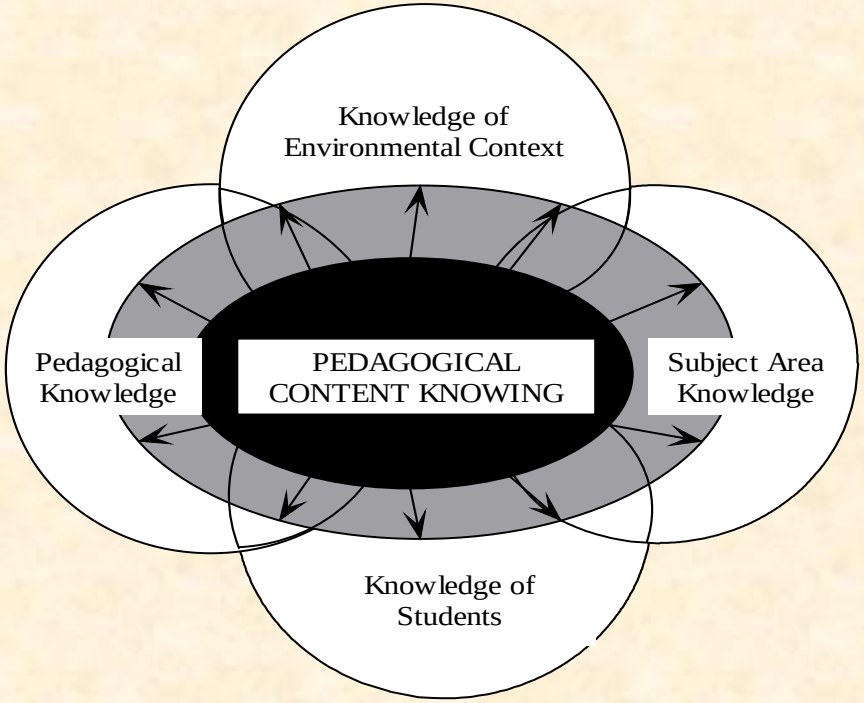
Design of the activity

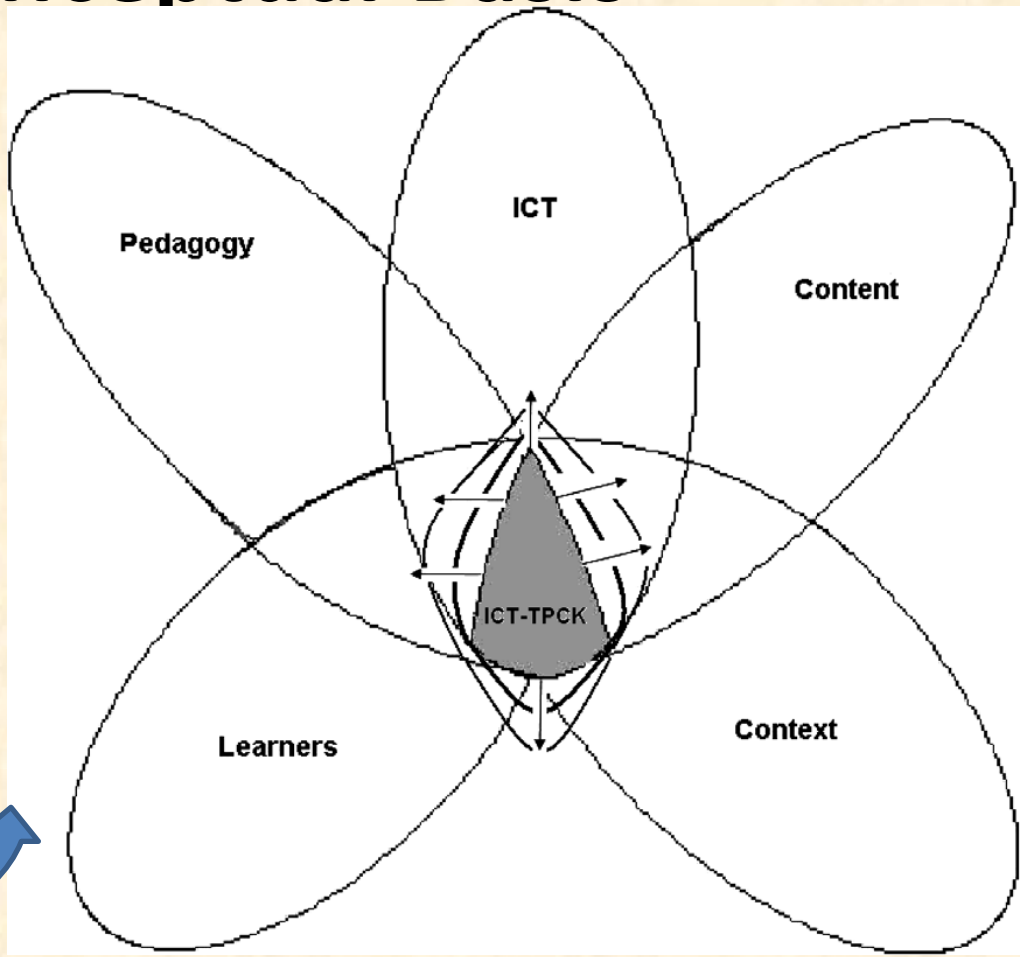
1. “Mirage” toy. Geometrical reconstruction of real image.
2. Laser source; prism, semicircle. Light deviation laws dispersion. Total reflection
3. Plane concave and convex mirrors. Reconstruction of real and virtual images. Multiple reflections. Kaleidoscope.
4. AFFINE GEOMETRY (Open air activity, parallel lines remain parallel, concurrent lines remain concurrent, the ratio of length of line segments of a given line remains constant, the ratio of areas of two triangles remains constant, ellipses remain ellipses and the same is true for parabolas and hyperbolas, barycenters of triangles (and other shapes) map into the corresponding barycenters)

3. ICT and SCIENCE EDUCATION: A NEW CULTURE ON DEVELOPING CRITICAL THINKING. Nicos valanides University of Cyprus, CYPRUS

- **Science Education and Today's Children**
- **Science Education: Teachers and Educators**
- **the basic technical skills for using ICT are strongly needed for effective and efficient integration of ICT in teaching/learning.**
- **Pedagogical Content Knowledge implies a transformation of subject matter knowledge, so that it can be effectively and flexibly used in the communication exchange between teachers and learners.**

PCK as a Conceptual Basis





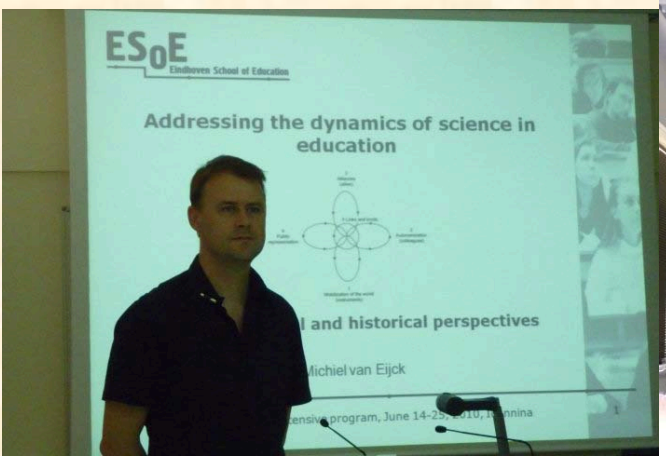
- **Fig. 1. A Model of Pedagogical Content Knowing (PCKg) adopted from Cochran et al. (1993).**

5th workshop: University of Cyprus

- How can we design game-like activities, either real or virtual, to foster children's personal development?
- Which concepts or processes of science can be taught using these game-like activities?
- What is the added value of ICT and its pedagogical affordances (intended or unintended)?

4. University of Eindhoven, ADDRESSING THE DYNAMICS OF SCIENCE IN EDUCATION: TOWARDS CULTURAL AND HISTORICAL PERSPECTIVES, *Michiel van Eijck*

- How could we define scientific literacy such that it includes the dynamics of science?
- Theorizing scientific literacy in the wild
- Science literacy: its meaning on school
- Scientific literacy as an emergent feature collective activity



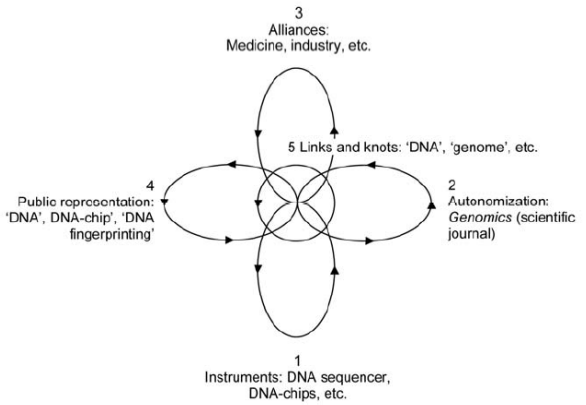
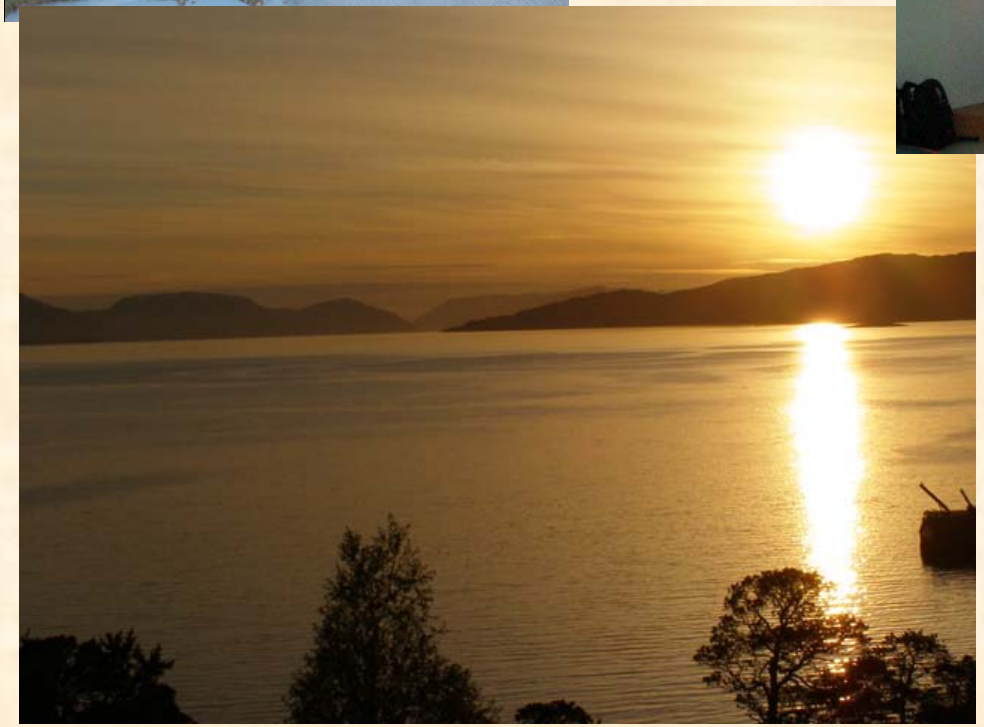
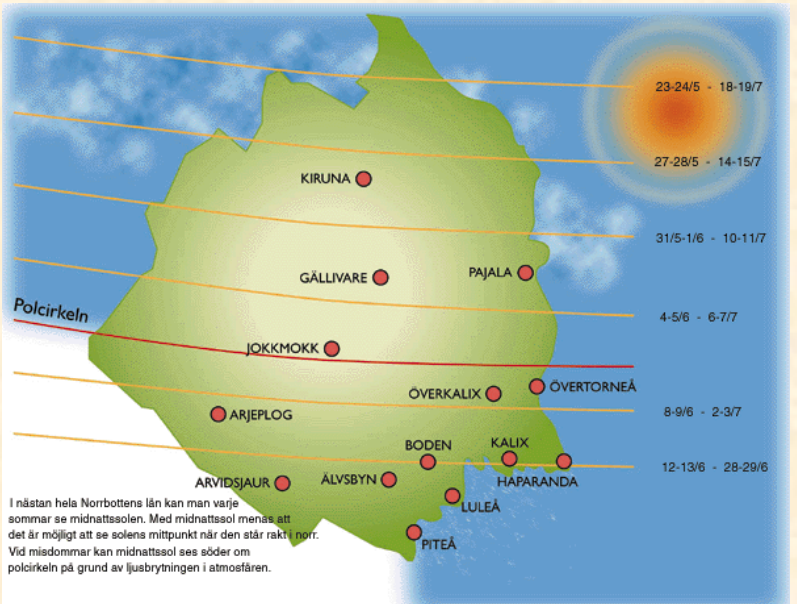


Figure 1 ANT-based model of the dynamics of science (after Latour, 1999)

5. Linnaeus University, Mattias Lundin & Ragnar Olsson

The northern light





Philosophical ideas

Four different isms:

ESSENTIALISM

PROGRESSIVISM

RECONSTRUCTIVISM

PERENNIALISM

F*A*U*FBack to Sweden and the national curriculum (syllabus)

Facts

Ability

Understanding

Familiarity

3rd workshop: University of Eindhoven & Linnaeus University

- Use the different ways of teaching (F.A.U.F.) from lecture
- Make moving mobiles with the materials
- Use the light of projector (reflection & shadows)

Opportunities

- To make pupils scientifically literate
- ICT in the classroom
- connection with everyday life
- getting familiar with the scientific method
- connection mathematics & real problems
- implement your solutions
- aware of (dis)advantages of the issue
- searching for practical information
- do independent research
- improving argumentation skills
- sharpen social & political skills
- different groups have different benefits
- training objectivity

Challenges

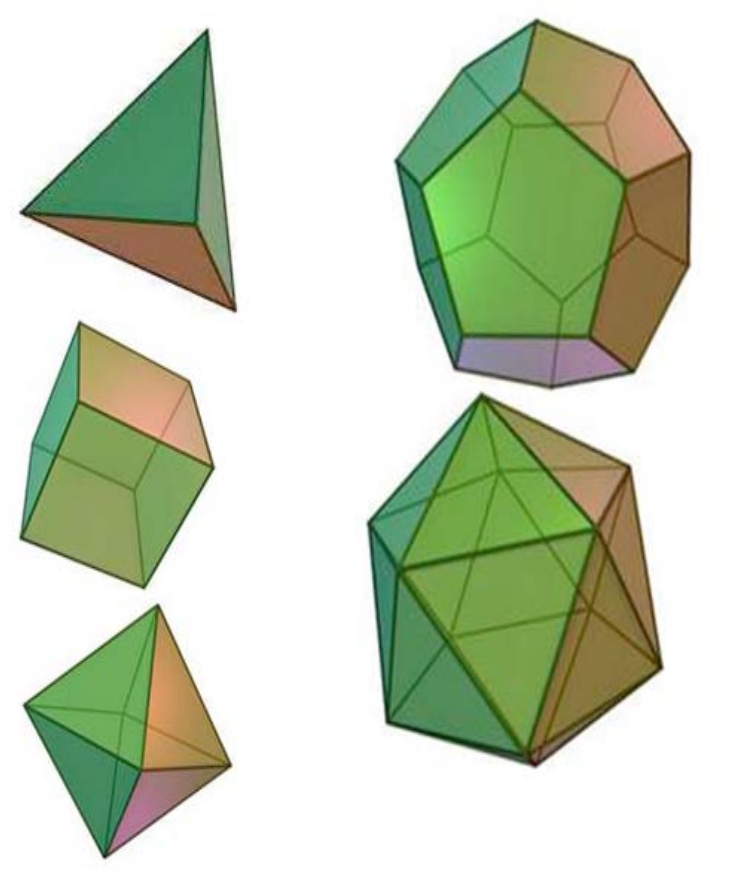
- involve everyone (team formation)
- too abstract (depends on the topic, age)
- time consuming
- adaption for education level
- judging relevance of sources (let alone reading them)
- stay critical esp. in internet sources (internet could be biased)

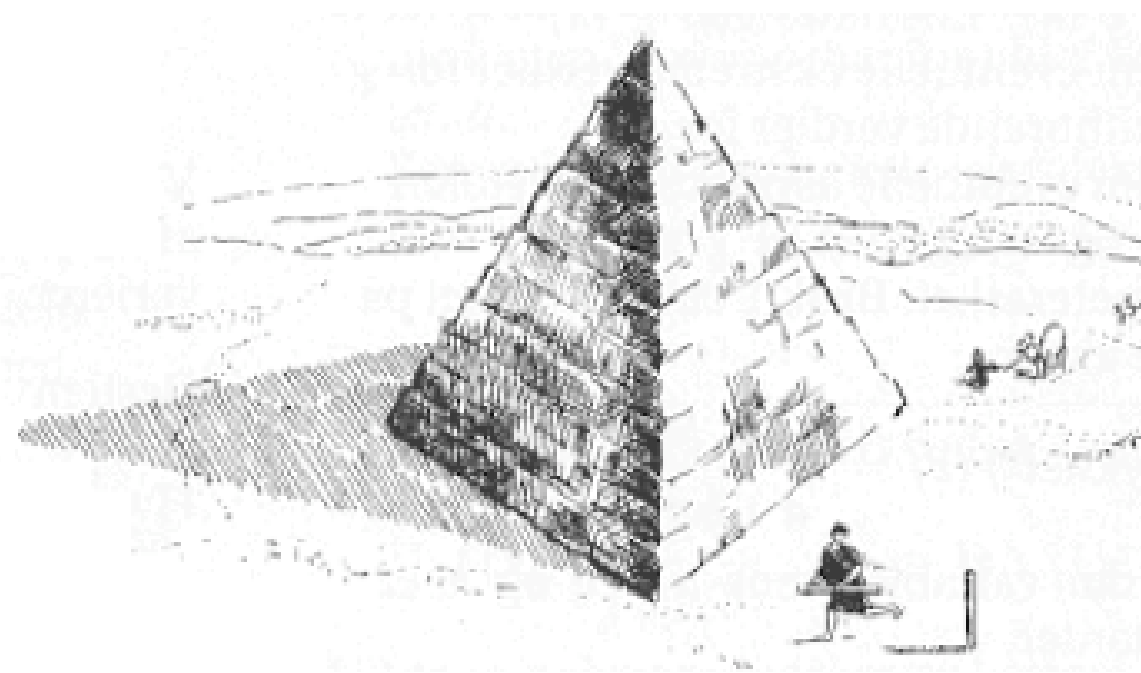
6. University of Minho – Portugal, Pedro Palhares, Graça Carvalho

- School science Textbooks of Portugal
- Textbooks and scientific literature
- The use of images in science textbooks

4th workshop: University of Minho

Platonic solids





7. ST. PATRICK'S COLLEGE (A COLLEGE OF DUBLIN CITY UNIVERSITY): IRELAND, Lorraine McCormack

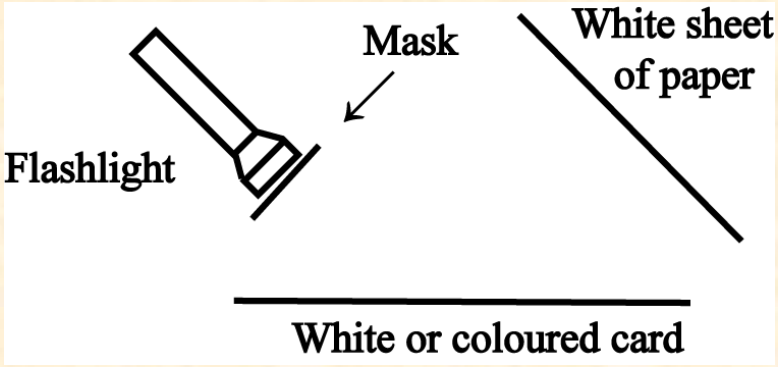
Inquiry Based Materials on Light and Shadows

- **Maturation**(Time and the development of the central nervous system)
- **Environment**(Physical and cognitive stimulation)
- **Potential** (Every child has a different genetic make-up)

Age/ stage picture

Stages of cognitive development	Cognitive level	Age (years)
Sensori-motor		0/2
Pre-operational		2/7
Concrete operational	Early concrete (2A)	5/6
	Mid concrete (2A/2B)	7/9
	Late concrete (2B)	10/11
	Concrete generalisation (2B*)	
Formal operational	Early formal (3A)	11/13
	Late formal (3A/3B)	
	Formal generalisation (3B)	14/15

- Introduction to Light
- Experiments using everyday materials
- Light Sources, Masks, and Screens
- Shadows



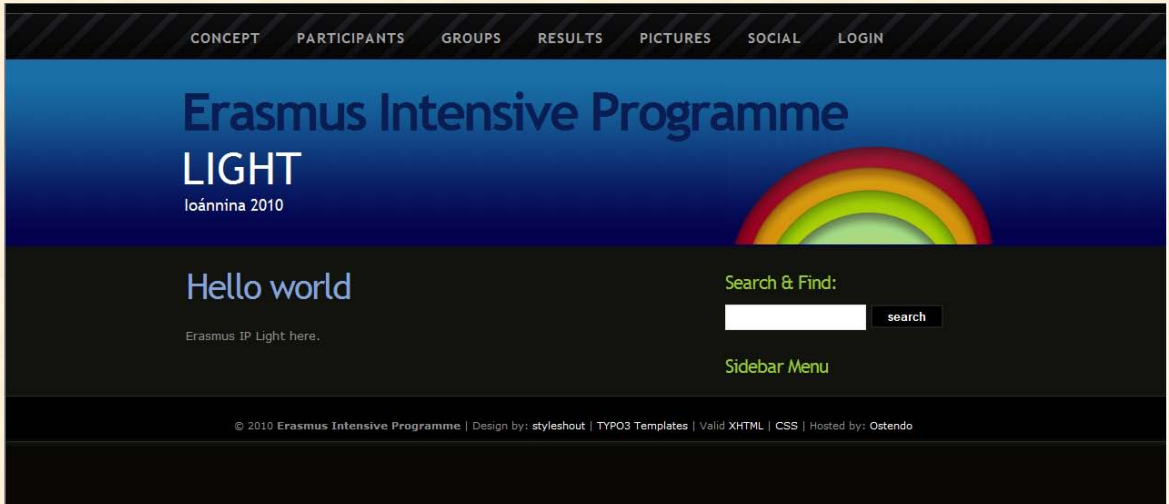
Innovative Curriculum

- All groups choose **subjects/themes** of their own.
- create and describe a ”**small curriculum**” on their subject. using:
- **1. Aim/learning outcome/goal/rationale**.
- **2**. decide up to **three different groups** of pupils – different ages.
- **3.** describe the **activity** they would like to conduct to make their target groups achieve the learning objectives.
  - Put great focus on the **progression** between their target groups.
- **4.** they discuss their **didactical decisions.**
- **5.** refine their activity from point 3 after you have discussed the didactical questions
- 6. prepare any extra resources they will need to teach this topic eg. worksheets

Communication Networks

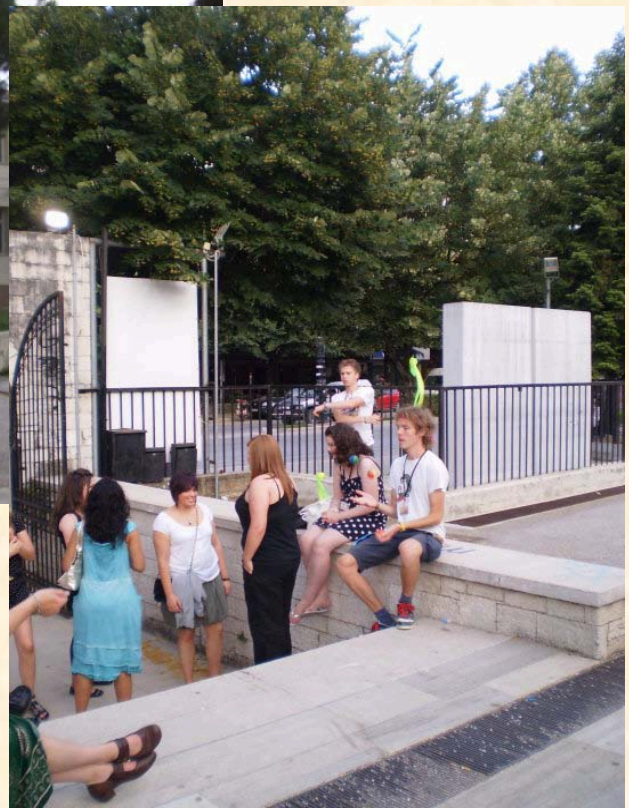
http://www.facebook.com/group.php?gid=132541446763830&ref=ts

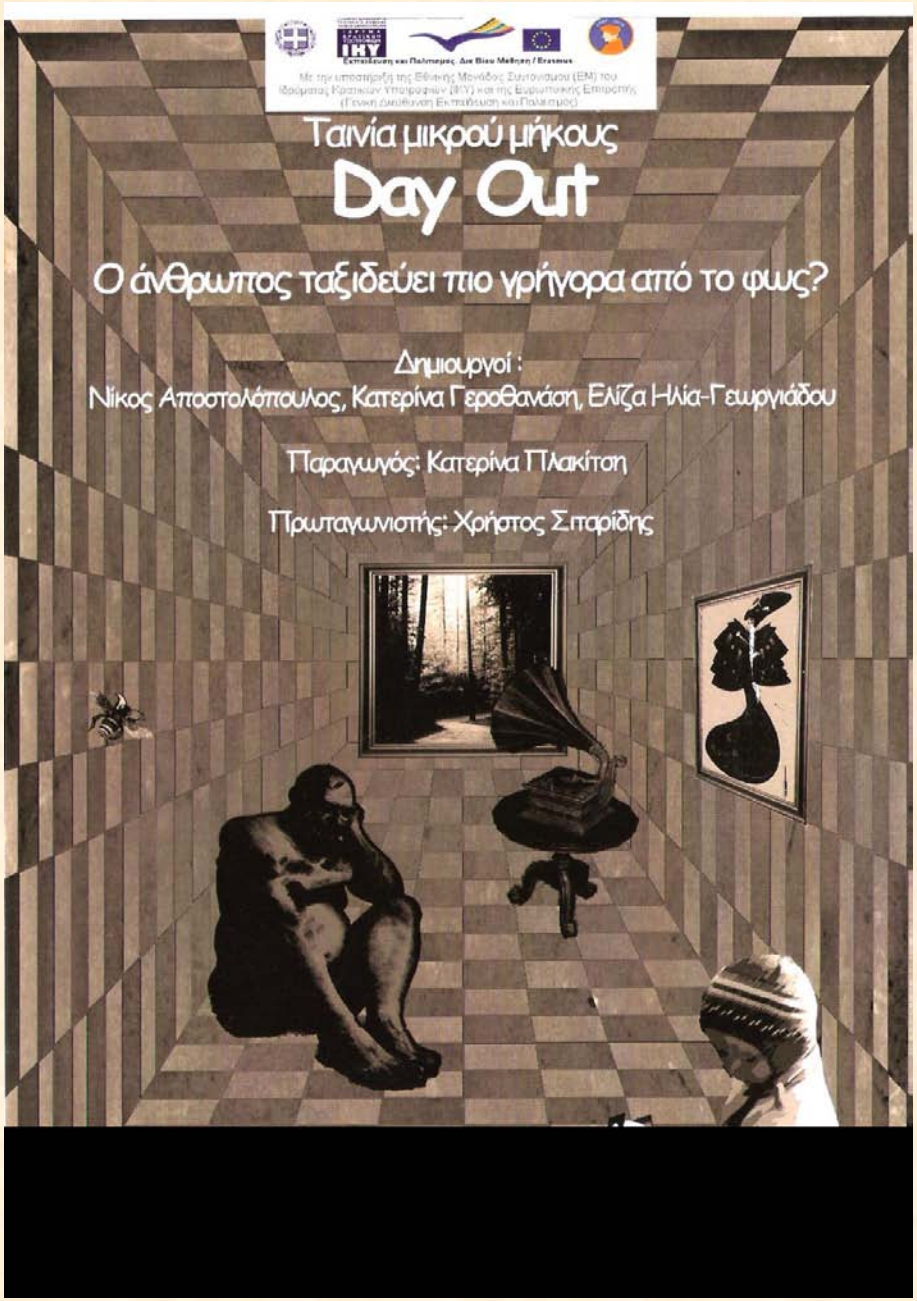
http://www.eiplight.eu/



Movie Promotion &Flame of Hope

- A movie from Erasmus I.P. to **special Olympics Athens 2011**
- Many **volunteers** from Erasmus I.P & citizens of Ioannina
- Promotion **events** of Erasmus I.P students





ΠΡΟΣΚΛΗΣΗ

Στο πλαίσιο των εργασιών του Διεθνούς Θερινού Πανεπιστημίου –
Εντατικού Προγράμματος ERASMUS-I.P. "LIGHT",
το Παιδαγωγικό Τμήμα Νηπιαγωγών του Πανεπιστημίου Ιωαννίνων
σας προσκαλεί το **Σάββατο 19 Ιουνίου και ώρα 21:00**
στην Αίθουσα Αρχιεπισκόπου Σπυρίδωνος της Ζωσιμαίας Παιδαγωγικής Ακαδημίας
στην πρεμιέρα της ταινίας μικρού μήκους
"Day out".

Ομιλητές:
Πρύτανης Πανεπιστημίου Ιωαννίνων, Καθ. Ιωάννης Γεροθανάσης.
Κοσμήτορας της Σχολής Επιστημών Αγωγής, Καθ. Πολυξένη Παγγέ.
Πρόεδρος του Παιδαγωγικού Τμήματος Νηπιαγωγών, Καθ. Μαρία Καλδρυμίδου.
Συντονίστρια ERASMUS-IP, Επ. Καθηγήτρια Κατερίνα Πλακίτση.
Φοιτητές – Δημιουργοί της ταινίας.

* Προσέλευση έως τις 20:45'.
* Η ταινία είναι στην ελληνική γλώσσα με αγγλικούς υπότιτλους.
* Επικοινωνία: 2651005771-2651005757 http://erasmus-ip.uoi.gr

Η πρεμιέρα της ταινίας "Day Out" αφιερώνεται στα Special Olympics Athens 2011 και για την πόλη των Ιωαννίνων στην ΕΛ.Ε.Π.Α.Π. και τη ΜΕΡΙΜΝΑ.

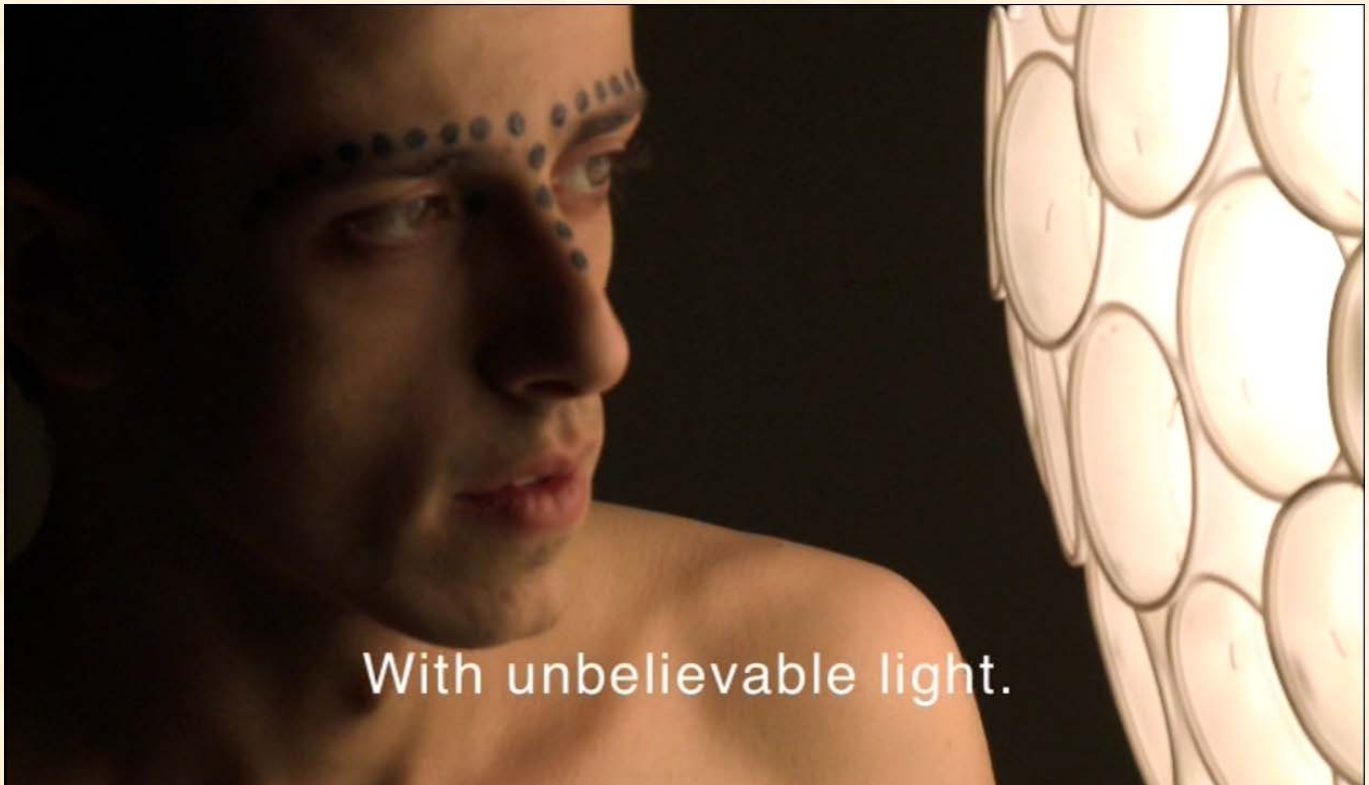
Ευγενικοί Χορηγοί:
-Ευρωπαϊκή Επιτροπή - Ι.Κ.Υ.
-Επιτροπή Λόγου και Τέχνης, Πανεπιστήμιο Ιωαννίνων
-Ιερά Μητρόπολις Ιωαννίνων
-Τράπεζα Ηπείρου
-Εργαστήριο Νεότερης Ελλάδας και Νεοελληνικού Πολιτισμού, Παιδαγωγικό Τμήμα Νηπιαγωγών Πανεπιστημίου Ιωαννίνων
-Ξενώνας Art Deco – Καφέ Σύννεφο 9
-Βιβλιοπωλείο ΕΛΕΥΘΕΡΟΥΔΑΚΗΣ

DAY OUT

ΜΙΑ ΤΑΙΝΙΑ ΤΩΝ
ΝΙΚΟΥ ΑΠΟΣΤΟΛΟΠΟΥΛΟΥ
ΚΑΤΕΡΙΝΑΣ ΓΕΡΟΘΑΝΑΣΗ


I asked you something.


What are you talking about?
Release me!


With unbelievable light.

ΔΙΕΥΘΥΝΣΗ ΠΑΡΑΓΩΓΗΣ
Κατερίνα Πλακίτση

Ευχαριστούμε θερμά την Μαρία Παπαδοπούλου για την ευγενική παραχώρηση του χώρου.

Την Ευρωπαϊκή Επιτροπή - Ι.Κ.Υ.

Την Επιτροπή Λόγου και Τέχνης

Τη Διεύθυνση Διεθνών και Δημοσίων Σχέσεων Πανεπιστημίου Ιωαννίνων.

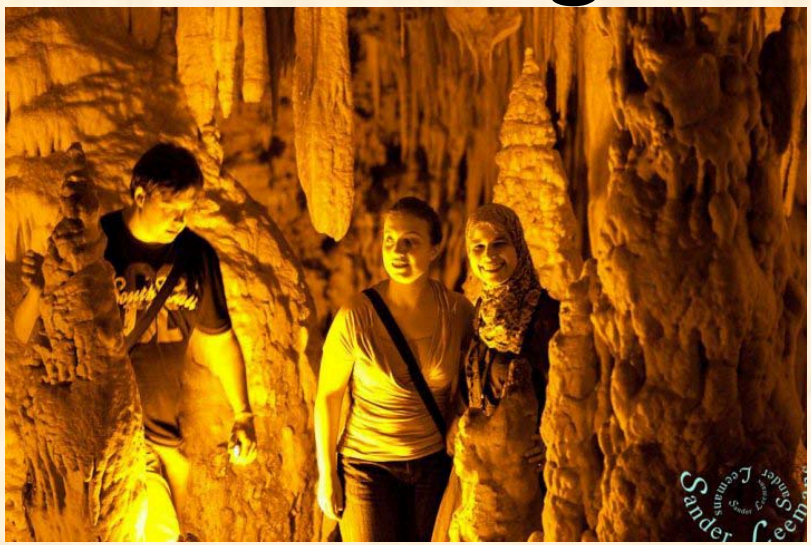
Την Πρυτανεία Ιωαννίνων

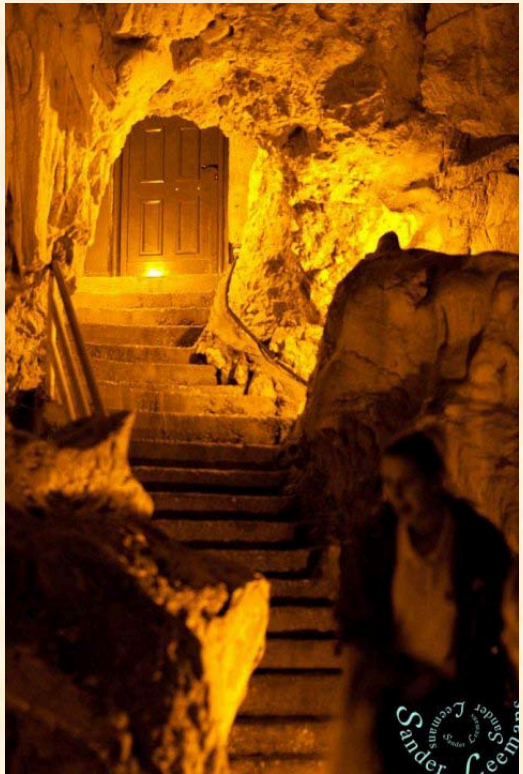
Την Ιερά Μητρόπολη Ιωαννίνων

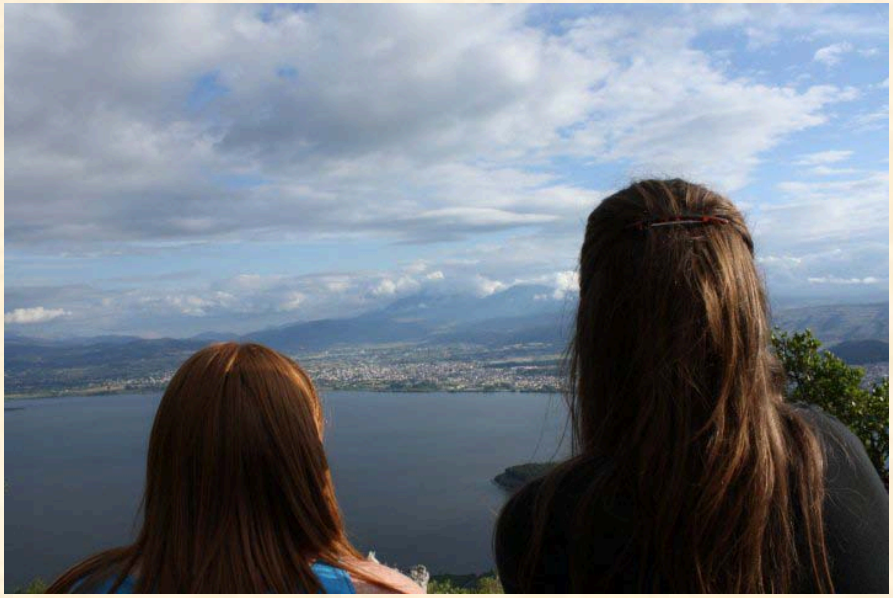
The other side of the Moon…

SOCIAL EVENTS

The light of Ioannina Cave







Student's guide, transportation & accommodation

Benefits & special events

- Cooperation with central Erasmus office of the university of Ioannina
- Welcome from the central Erasmus club
- Welcome from Rector of the University of Ioannina
- Free internet access (Stavros Niarxos, computer center)
- Free access to library
- Cd-rom with information of the campus

Certificates & Further Evaluation

In the future…???

- **Our proposal for the renewal IP in the academic year 2010-2011 has been accepted!!!**
- **The renewal IP "LIGHT" is connected with the topic of Sustainability and brings a strong innovation in Science Education.**
- **6 bilateral agreements**
- **Teaching staff mobility (coordinator- Sweden)**
- **Joint programs**
- **Coordinator: info days for multilateral projects (Brussels)**

- ***Opportunity of 15 bilateral agreements for FP7***