

10th Anniversary of the European Environment Agency

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How to communicate science?

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Experimentarium

Experimentarium

The Danish Science Center

Experimentarium

The Danish Science Center

Inaugurated by
Her Majesty The Queen
In 1991

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The Danish Science Center

Inaugurated by
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In 1991

Since then 5 million
visitors

ECSITE

ECSITE

The European Network
of Science Centres
and Science Museums

ECSITE

The European Network
of Science Centres
and Science Museums

330 institutions in 35 countries
with 35 million visitors

Lisbon Declaration

2010

Lisbon Declaration

2010

Europe:

Competitive and dynamic
knowledge-based economy

Lisbon Declaration

Increased science research and
development

**What does increased science
research need???**

What does increased science research need???

Funds

What does increased science research need???

Funds

Laws that allow the sufficient and necessary research

What does increased science research need???

Funds

Laws that allow the sufficient and necessary research

Young and bright people that is willing to study science and to make a research career

Science communication

Funds, laws and young and bright people are all coming from the “people”

Science communication

Funds, laws and young and bright people are all coming from the “people”

Either given by the parliament or by the decision of the young generation

Conclusion 1

Therefore the Lisbon goal can only be fulfilled if the public understanding of science is improved

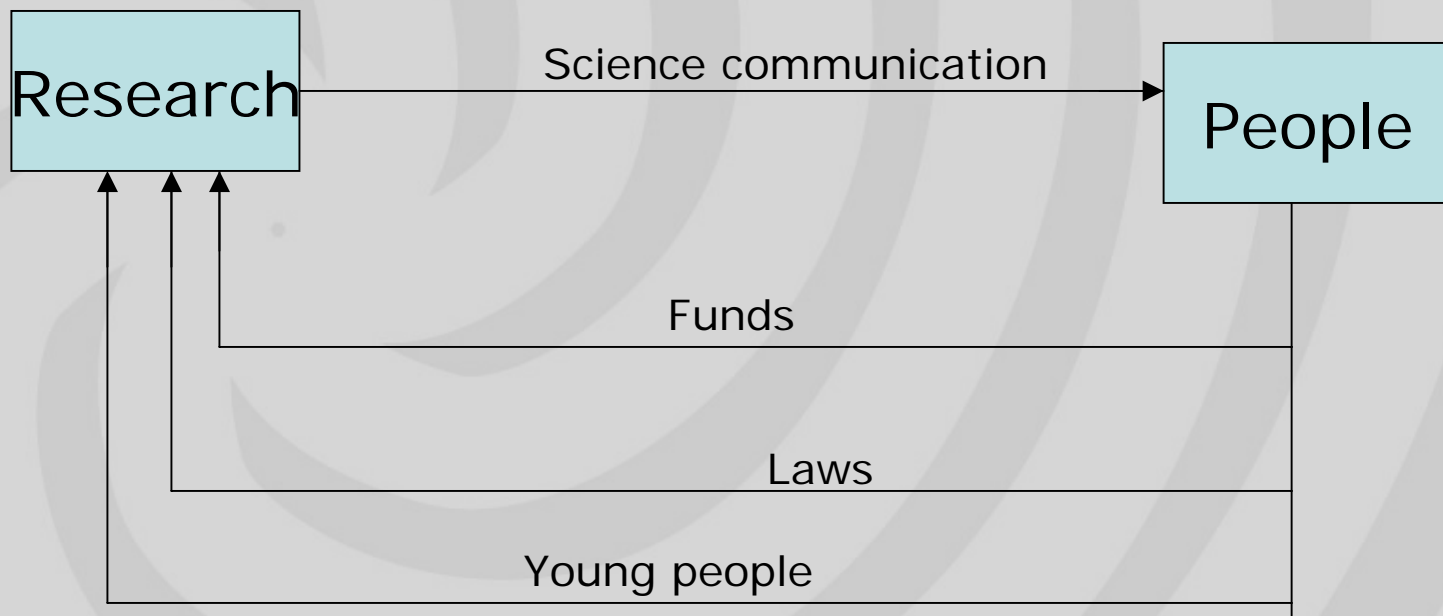
Conclusion 1

Therefore the Lisbon goal can only
be fulfilled if the public
understanding of science is
improved

and the scientific culture in Europe
is strengthened

Increase the public understanding of science

Strengthen the scientific culture



Public understanding of science

The younger generation is less interested in science today than 30 years ago

Public understanding of science

The younger generation is less interested in science today than 30 years ago

Only in the Western World!!

Public understanding of science

Why is the younger generation less interested in science today???

Public understanding of science

Why is the younger generation less interested in science today???

Not because that science is more dull, dangerous or difficult

Public appreciation of science

Our children and grandchildren are all sitting on the top of The Pyramid of Maslow

Public appreciation of science

Our children and grandchildren are all sitting on the top of The Pyramid of Maslow

Only with one purpose:
To realize themselves!!



How do I realize myself

Maslows Pyramid

Science is not necessary

Science have helped us to the top
of Maslow's Pyramid

Science is not necessary

Science have helped us to the top
of Maslow's Pyramid

Now, science is not necessary!!

How to improve science communication???

We need to communicate science in new formats, where the young generation is appealed by the science because science helps it to realize themselves

How to improve science communication???

This means that we have to go through a revolution in science communication during the next decades

Conclusion 2

The Lisbon Declaration can only be reached if the science communication is improved dramatically!

Conclusion 2

The buzz words are:

Conclusion 2

The buzz words are:

Research

Conclusion 2

The buzz words are:

Research
Innovation

Conclusion 2

The buzz words are:

Research
Innovation
Development

Conclusion 2

The buzz words are:

Research

Innovation

Development

In science communication

Where to start??



Babies

Children

Teenagers

Adults

Seniors

Capacity
of learning



Kindergarten

Primary school

Secondary school

University

Lifelong learning

Capacity
of learning

Science communication

Start as early as possible

Science communication

Start as early as possible

Renew the teaching principles in
the primary and secondary
schools

Science communication

Start as early as possible

Renew the teaching principles in
the primary and secondary
schools

Inspired by the informal learning
institutions

Inspiration

Informal
learning
institutions

Formal learning
institutions

Acknowledgement
Open minded
Money and time

Conclusion 3

It is in the informal learning institutions that the necessary renewal of the science communication and teaching must take place

Experimentarium

Experimentarium is a role model of an informal learning institution

Experimentarium

Experimentarium is a role model of an informal learning institution

Monday - Friday:

Informal learning for 110.000 school children

Experimentarium

Experimentarium is a role model of an informal learning institution

Monday - Friday:

Informal learning for 110.000 school children

During weekends: Lifelong learning

Chinese proverb

I hear - and I forget

Chinese proverb

I hear - and I forget

I see - and I remember

Chinese proverb

I hear - and I forget

I see - and I remember

I do - and I understand

Experimentarium

In Experimentarium, you make experiments with your own body and with your own mind

Experimentarium

In Experimentarium, you make experiments with your own body and with your own mind

You do the things yourself and you understand!!

RED YELLOW RED PINK

GREEN BLACK BLUE

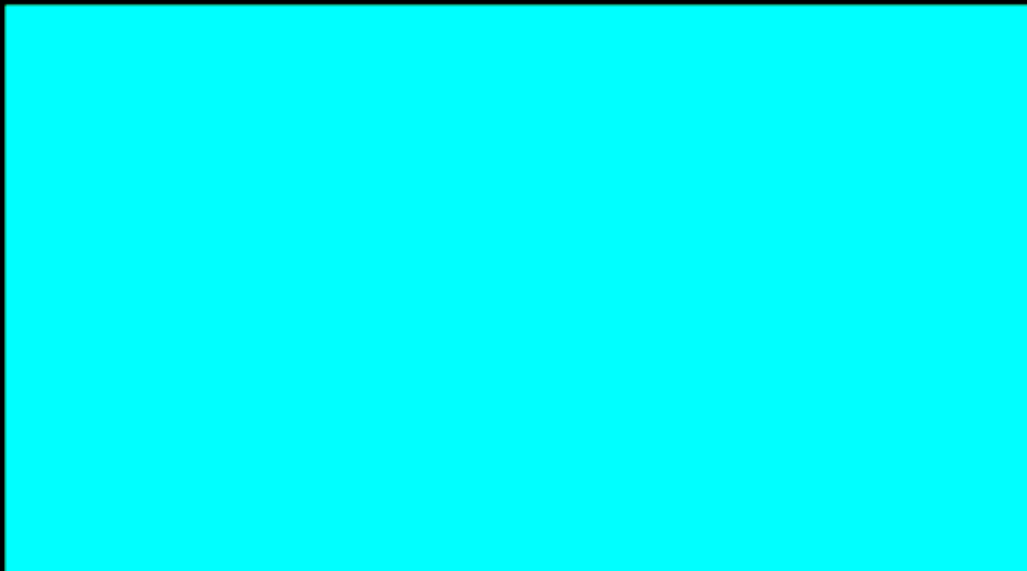
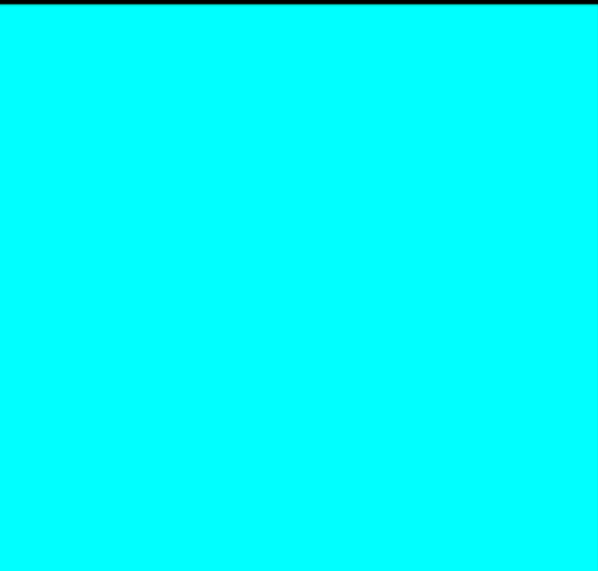
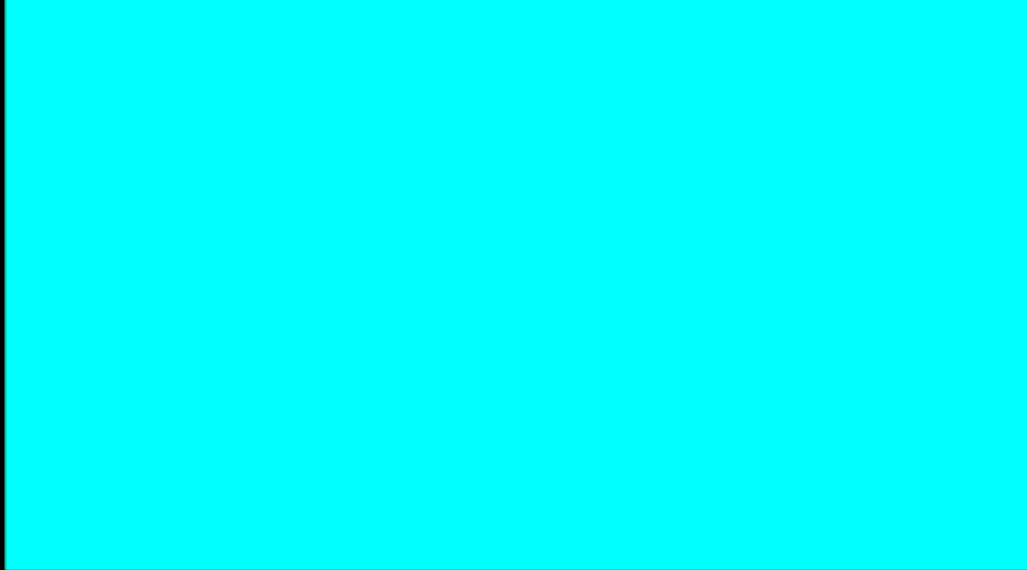
PURPLE BLACK YELLOW

RED BLUE GREEN RED

BLUE PINK YELLOW

BLACK YELLOW PINK

GREEN RED BLUE PURPLE



Experimentarium

Use all kinds of media

Science communication

Use all kinds of media

Experiments, websites, shows, demos, theatre, debates, TV, videos, competition, dungeons and dragons universe, learning by teaching, dilemma plays, consensus conferences, teachers training, research in visitor behaviour etc.

European science centers

Melting pots of new ways to
communicate science

Science communication

And make sure that the child is in the centre of the communication

Science communication

And make sure that the child is in the centre of the communication

It means: It must be relevant and interesting

Statement!!

Science can not always be
communicated relevant and as an
interesting subject!?

**Science can not always be
communicated relevant and
as an interesting subject!?**

Wrong!

**Science can not always be
communicated relevant and
as an interesting subject!?**

Wrong!

It is “just” a matter of innovation
in the learning system

Science is really sexy and the answer to your self realization program

Life in Universe outside Earth?

Science is really sexy and the answer to your self realization program

Life in Universe outside Earth?

Hicks particle

Science is really sexy and the answer to your self realization program

Life in Universe outside Earth?

Hicks particle

What can the DNA-research bring
us the next 100 years?

Science is really sexy and the answer to your self realization program

Try the lie detector!

Science is really sexy and the answer to your self realization program

Try the lie detector!

Dissect a cows eye

Science is really sexy and the answer to your self realization program

Try the lie detector!

Dissect a cows eye

See your skin temperature in the
infrared camera

Science is really sexy and the answer to your self realization program

See the slinky making standing waves

Science is really sexy and the answer to your self realization program

See the slinky making standing waves

Test your genes towards 10.000 visitors

Science is really sexy and the answer to your self realization program

See the slinky making standing waves

Test your genes towards 10.000 visitors

See your skeleton cycling

Science is really sexy and the answer to your self realization program

Hear flames making sounds in pipes

Science is really sexy and the answer to your self realization program

Hear flames making sounds in pipes

Merge yourself into the weather forecast

Science is really sexy and the answer to your self realization program

Hear flames making sounds in pipes

Merge yourself into the weather forecast

See 500 million years of plate tectonic

Conclusion 4

In a science centre, the children are inspired to learn more about science

Conclusion 4

In a science centre, the children are inspired to learn more about science

In a science centre, the teachers are inspired to perform better teaching

The climate change youth conference

November 2002

The climate change youth conference

November 2002

EEA

The climate change youth conference

November 2002

EEA

The British Council

The climate change youth conference

November 2002

EEA

The British Council

The Danish Meteorological
Institute

The climate change youth conference

November 2002

EEA

The British Council

The Danish Meteorological
Institute

University of Copenhagen

The climate change youth conference

November 2002

EEA

The British Council

The Danish Meteorological
Institute

University of Copenhagen

University of East Anglia

The climate change youth conference

November 2002

EEA

The British Council

The Danish Meteorological
Institute

University of Copenhagen

University of East Anglia

Hadley Centre for Climate

The climate change youth conference

And the European Commission

The climate change youth conference

And the European Commission

The European Science Week
2002

The climate change youth conference

Who is responsible for the climate change??

The climate change youth conference

Who is responsible for the climate change??

Man or Nature??

The climate change youth conference

Who is responsible for the climate change??

Man or Nature??

A trial with a judge, a jury, defender and accuser

The climate change youth conference

The jury: 250 students, age 17 - 18 years old

The climate change youth conference

The jury: 250 students, age 17 - 18 years old

The judge: Bob Watson from UN Climate Panel

The climate change youth conference

The jury: 250 students, age 17 - 18 years old

The judge: Bob Watson from UN Climate Panel

The defenders and accusers:
Scientists from Denmark and UK

The climate change youth conference

The same questionnaire before
and after the conference

The climate change youth conference

The same questionnaire before
and after the conference

Are you willing to change your life style to reduce the climate change?

The climate change youth conference

The same questionnaire before
and after the conference

Are you willing to change your life style to reduce the climate change?

From 1 to 7

The climate change youth conference

Lectures and debates

The climate change youth conference

Lectures and debates

Visit to the exhibitions

The climate change youth conference

Lectures and debates

Visit to the exhibitions

A film

The climate change youth conference

Lectures and debates

Visit to the exhibitions

A film

Visited web sites

The climate change youth conference

Results:

The climate change youth conference

Results:

The young people changed their views on climate change!!

The climate change youth conference

Results:

The young people changed their views on climate change!!

Significantly!!

Conclusion

Conclusion

Better science communication
is a MUST to reach the Lisbon
Declaration

Conclusion

Better science communication
is a MUST to reach the Lisbon
Declaration

At the same time, science is more
difficult to communicate, because
the young generation has another
agenda: Self realization

Conclusion

Science must be communicated and taught as relevant and interesting

Conclusion

Science must be communicated and taught as relevant and interesting

Science must be communicated as early as possible

Conclusion

Science must be communicated and taught as relevant and interesting

Science must be communicated as early as possible

Science must be communicated by the use of all kind of media

Conclusion

This is giving a strong pressure on
the formal learning systems:
To introduce new methods for
science teaching

Conclusion

This is giving a strong pressure on the formal learning systems:

To introduce new methods for science teaching

The informal learning institutions must inspire the formal learning institution

Conclusion

The renewal of the science communication in Europe shall be supported by the innovative activities in science communication taking place in the European science centres and science museums

Conclusion

ECSITE

and the science centres and science museums in Europe invite the European Commission to increased cooperation so we can improve the science communication in Europe

Conclusion

The European Commission **MUST** continue the Science Society program in Framework Program 7

Conclusion

With the goal:

Conclusion

With the goal:

To stimulate research and
development and innovation in
science communication

Conclusion

With the goal:

To stimulate research and
development and innovation in
science communication

To the benefit for our
grandchildren 30 years from now!

**Thank you very much for
your attention!!**