

Which communication for higher education in scientific disciplines?

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Outline

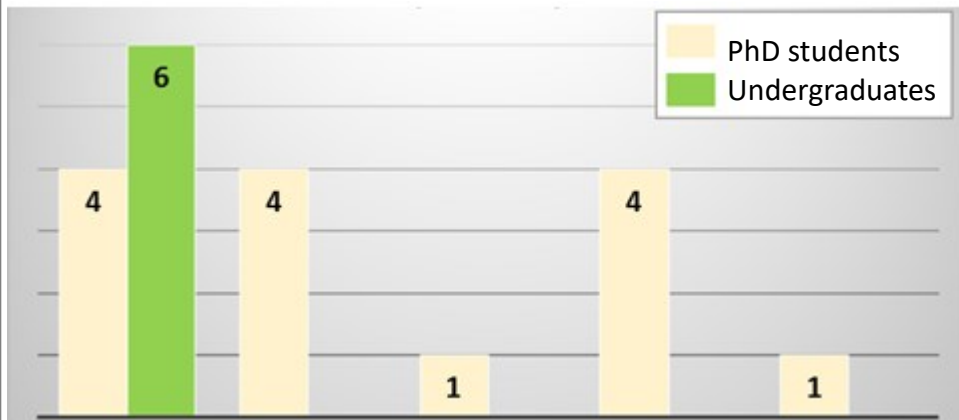
- Experience of the University of Naples Federico II in science teaching popularization and communication
- Reasons behind the study
 - Students' perception: invisible boundary between popularization and communication of science
 - Searching for the main purpose of scientific communication
 - Awareness of social and cultural contest of communication:
 - ✓ Relativism
 - ✓ Individualization
 - ✓ Reductionism
- Lesson learned from teaching experience
- Final consideration: communication in higher education

University of Naples's experience

During May-June 2018 and June 2019 a teaching experience, gained with a scientific communication course, has been realised at Polytechnic and Basic Sciences School at University of Naples Federico II, Naples (Italy)

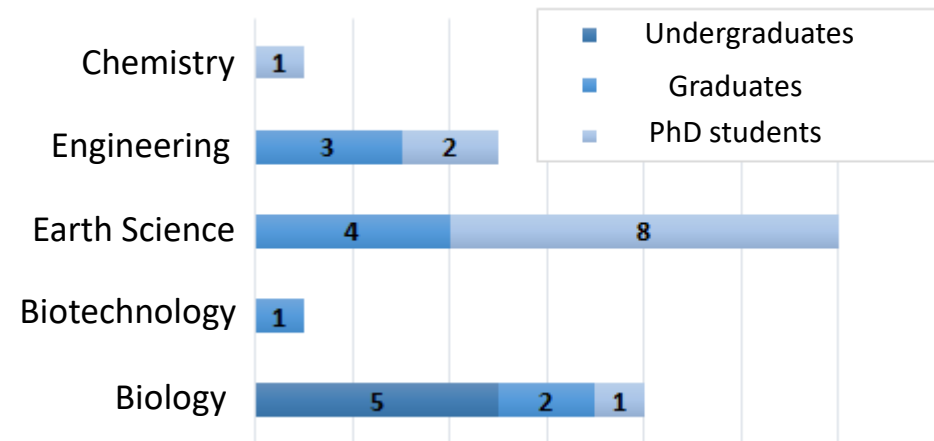
Class composition

May 2018



Earth Science Biology Agricultural Engineering Biotechnology

June 2019



20 and 27 students of different scientific disciplines attended at the course
in 2018 and 2019, respectively

University of Naples's experience

Organization and content of the realized course

May 2018

28-May-18	29-May-18	30-May-18	31-May-18	1-Jun-20
History and features of science popularization (4 hours)	Effective communication (2 hours)	Communication skills (2 hours)	Writing articles for newspapers (2 hours)	Public speaking (4 hours)
	Web-journalism (1 hour)			
	Science magazines (1 hour)	Writing articles for newspapers (1 hour)	Knowledge management (1 hour)	
Federico II Press Office (2hours)	Science & School (2 hours)	Writing articles for newspapers (2 hours)	From knowledge to popularization (3 hours)	Risk communication

June 2019

3-Jun-19	4-Jun-19	5-Jun-19	6-Jun-19	7-Jun-19
Science Popularization (2 hours)	Effective communication (2 hours)	Science & Comics (2 hours)	Ethic & Robots (1 hour)	Writing articles for newspapers (2 hour)
Team building (1 hour)		Communication skills (1 hour)	Writing articles for newspapers (2 hour)	Science teaching (1 hour)
Federico II Press Office (1 hour)	Web-journalism (1 hour)	Presentation skills (1 hour)	Public speaking (4 hours)	Maths and physics teaching (1 hour)
Interdisciplinary approach in scientific research (1 hour)	Media and tools (2 hours)	Team building (2 hours)		Science & School (2 hours)
Risk communication (1 hour)				



the study

1. Students' perception

Before the course started, all students gave their personal motivations to participate and the resulting motivations are synthetized in cloud graphs below:

May 2018



June 2019



GOAL



Our students do not perceive difference between communication and popularization

A famous scientist (A. Einstein)
thinks communication
as a milestone

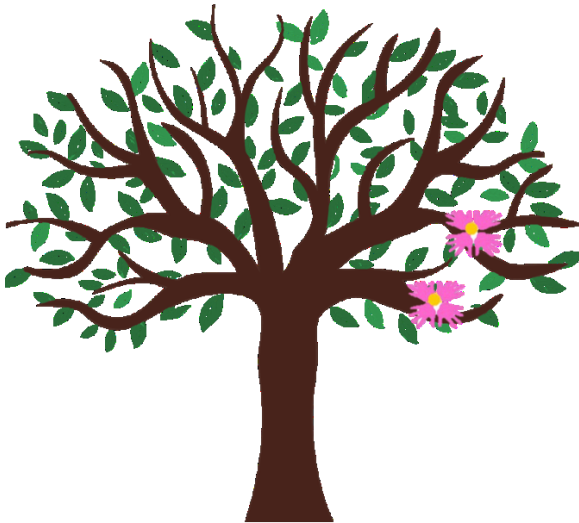
Reasons behind the study

2. Science purposes

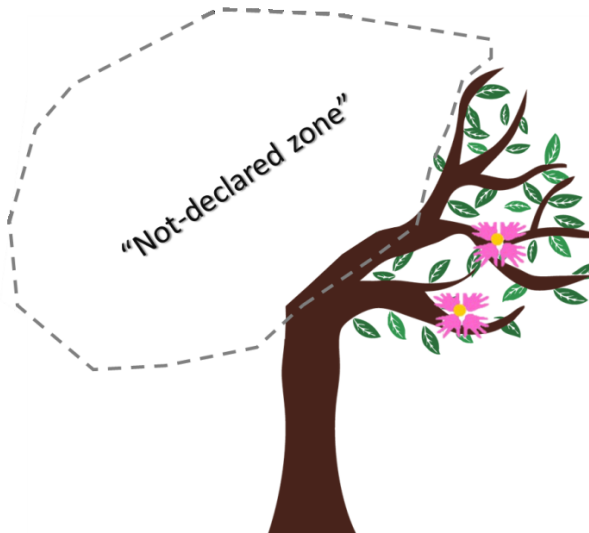
Science is for manipulating something...
or...someone

Science is for
marketing...

Tree is mainly without flowers



Tree is mainly with flowers

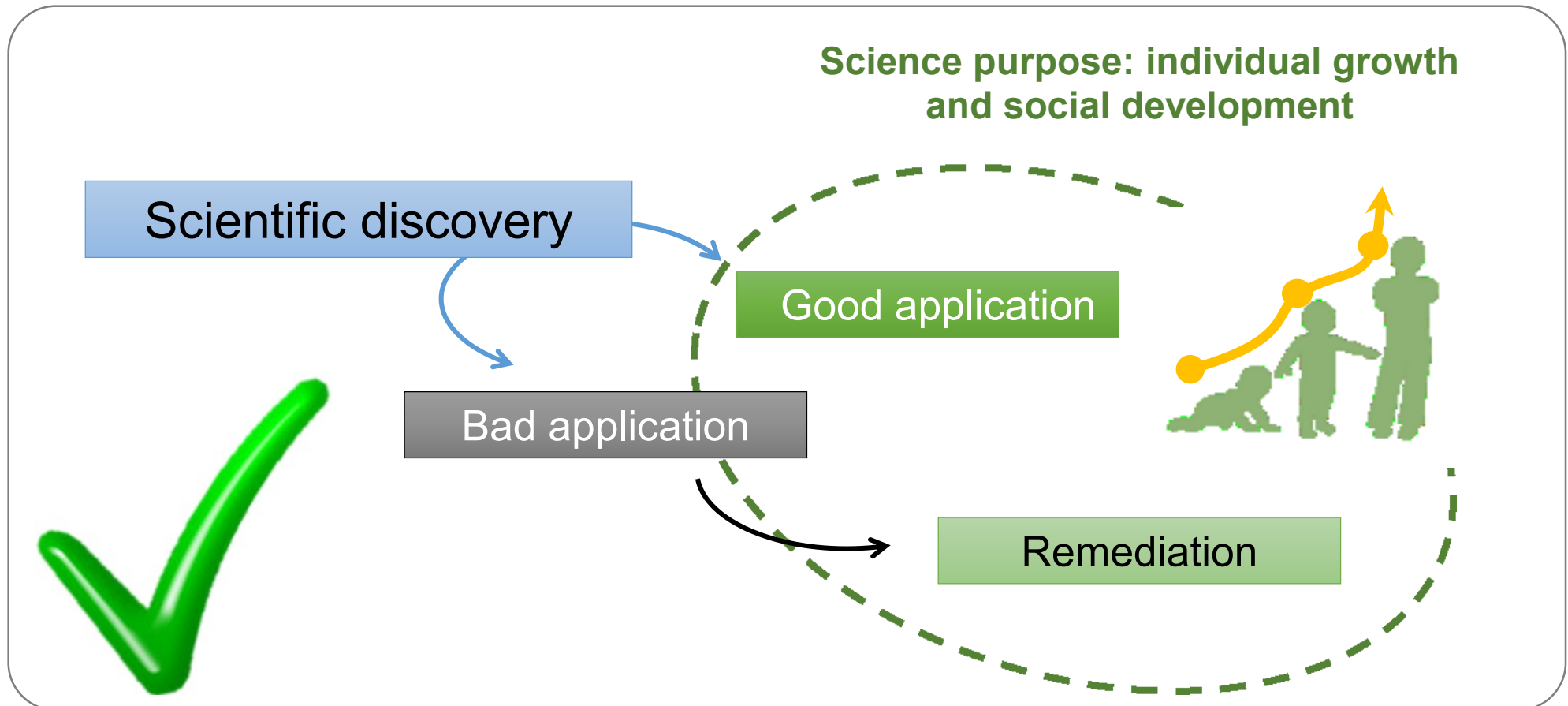


**Marketing &
Communications**

Reasons behind the study

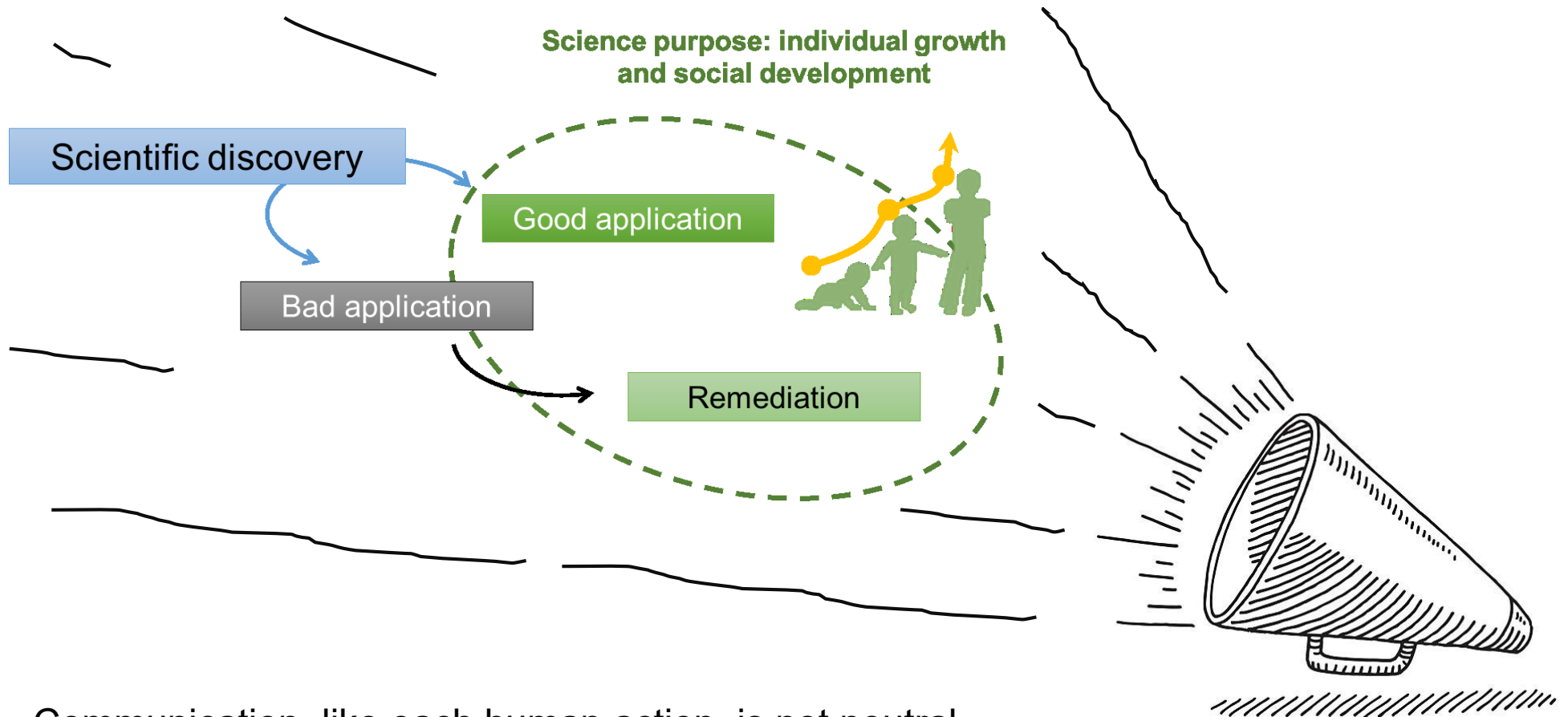
2. Science purposes

“...science is not simply technology... it is the application of knowledge for practical purposes, to make things and achieve humanly useful results” (Byerly, 2000)



Reasons behind the study

2. Science communication purpose



Communication, like each human action, is not neutral...

it can be done for the purpose of improving or worsening individual and society

Reasons behind the study

3. Social and cultural contest

Relativism: something true cannot be achieved

Pseudo-science is based on the suggestion, on what people want, takes cues from magazines without scientific deepening and spreads them to public opinion



Correct **scientific communication** differs from pseudo-scientific journalism because it is based on the authoritativeness of the sources and on the verifications

3. Social and cultural contest

Effect of relativism: Individualization



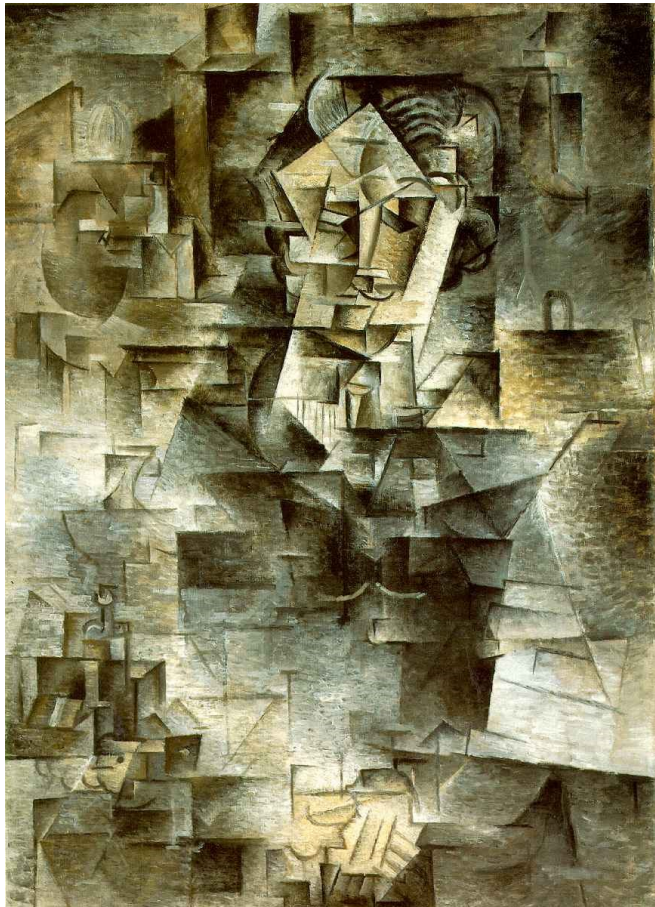
“Why in 1918 we recognized ourselves in the Nation’s fate or in the Family’s fate, in 1968 there was a revolution for a better world and in 2018 we mainly think about ourselves?”
(Petagine, 2019)

In the late 1980s, Allan Bloom wrote that his students were only worried about themselves because nobody gave them any other horizon in which to frame their lives
(Pieraccini, 2009)

Reasons behind the study

3. Social and cultural contest

Reductionism: all view is reduced to a partial view



Picasso - Portrait of D.H. Kahnweiler

Another effect of relativism and hyper-specialization is the scientific reductionism, which favours the individual point of view rather than the shared perspectives, which integrate different disciplines and respond better to real problems



Receiver, wherever “common citizen”, risks to receive fragmentary information on important topics (e.g. climate change, ecology, evolutionism, etc.)

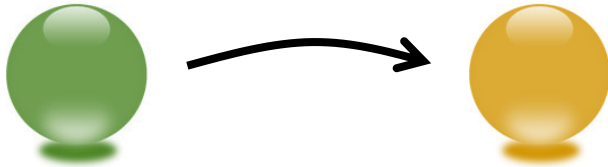
Lesson learned from teaching experience

Basic difference between popularization and communication

POPULARIZATION:

SENDER

RECIPIENT

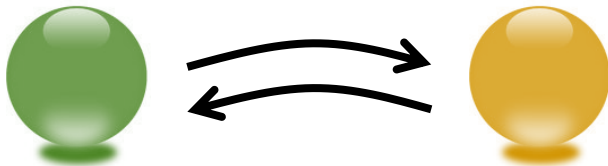


- ✓ Information follow one way
- ✓ Responsibility of the sender in scientific matters is fundamental
- ✓ Recipient improves his knowledge and ability to decisions on pragmatic and everyday life issues

COMMUNICATION (when effective):

SENDER

RECIPIENT



- ✓ Information follow round trip path
- ✓ Sender is invested of double responsibility: about scientific matters and about responsibility of the receiver's growth
- ✓ Receiver increases his ability to answer effectively through modified behaviors

Communication in higher education

“Levels” of sender-receiver relationship

SENDER

RECIPIENT



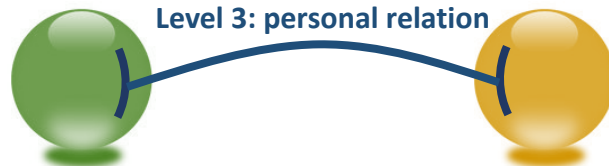
Level 1: formal relation

Starting level (asymmetric): formal relationship, due to different role, age and maturity. The receiver can change behavior, but out of duty (Scaratti et al., 2015).



Level 2: training relation

Upper level: the sender knows the receiver's personality. The receiver estimates the sender, considers him a guide for retrieving his objective (Scaratti et al., 2015).



Level 3: personal relation

Highest level: the sender has sincere interest in the listener's growth and grows himself in a mutual personal relationship.