Towards a Common European Numeracy Framework for Adults

Kees Hoogland, Javier Díez-Palomar & Madeleine Vliegenthart

Wednesday 11th July 2018 – ALM25, London UK

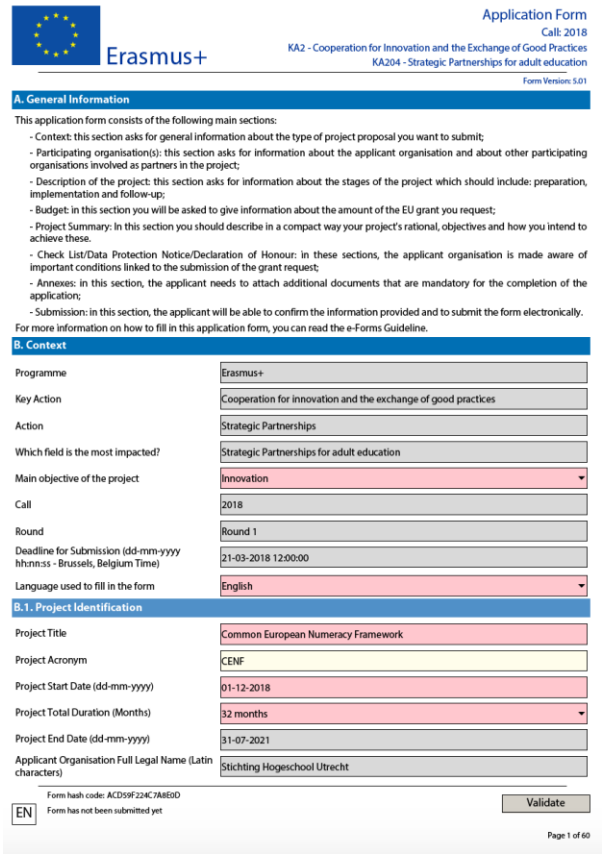
Today's program

- Project Context
- Societal context
- Brainstorm key ingredients
- Discussion

Project Context

- Erasmus+ (Granted on 19th July 2018 !!)
- 4 Institutes
  - HU University of Applied Sciences Utrecht
  - Berufsforderungsinstitut Öberosterreich (BFI-ÖO), Linz
  - University of Barcelona
  - University of Limerick
- 32 months project from dec 2018 – sep 2021 to combine professional development of adult numeracy teachers and volunteers with the development of a (tentative) Common European Numeracy Framework for Adults.

Common European Numeracy Framework for Adults



Erasmus+

Application Form
Call: 2018
KA2 - Cooperation for Innovation and the Exchange of Good Practices
KA204 - Strategic Partnerships for adult education
Form Version: 5.01

A. General Information

This application form consists of the following main sections:

- Context: this section asks for general information about the type of project proposal you want to submit;
- Participating organisation(s): this section asks for information about the applicant organisation and about other participating organisations involved as partners in the project;
- Description of the project: this section asks for information about the stages of the project which should include: preparation, implementation and follow-up;
- Budget: in this section you will be asked to give information about the amount of the EU grant you request;
- Project Summary: In this section you should describe in a compact way your project's rational, objectives and how you intend to achieve these.
- Check List/Data Protection Notice/Declaration of Honour: in these sections, the applicant organisation is made aware of important conditions linked to the submission of the grant request;
- Annexes: in this section, the applicant needs to attach additional documents that are mandatory for the completion of the application;
- Submission: in this section, the applicant will be able to confirm the information provided and to submit the form electronically.

For more information on how to fill in this application form, you can read the e-Forms Guideline.

B. Context

Programme	Erasmus+
Key Action	Cooperation for innovation and the exchange of good practices
Action	Strategic Partnerships
Which field is the most impacted?	Strategic Partnerships for adult education
Main objective of the project	Innovation
Call	2018
Round	Round 1
Deadline for Submission (dd-mm-yyyy hh:mm:ss - Brussels, Belgium Time)	21-03-2018 12:00:00
Language used to fill in the form	English

B.1. Project Identification

Project Title	Common European Numeracy Framework
Project Acronym	CENF
Project Start Date (dd-mm-yyyy)	01-12-2018
Project Total Duration (Months)	32 months
Project End Date (dd-mm-yyyy)	31-07-2021
Applicant Organisation Full Legal Name (Latin characters)	Stichting Hogeschool Utrecht

Form hash code: ACD59F224C7A8E0D
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Validate

EN

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The project aims to improve the professional development opportunities available for adult numeracy teachers and volunteers all over Europe, through the development of a Common European Numeracy Framework (CENF) and a set of modules for the Professional Development (PDM) of teachers and volunteers in adult numeracy education.

The societal context

- **Being a “full” citizen in our societies**

Ciencia en el Parlamento

¿Qué es #CienciaenelParlamento?

El proyecto *Ciencia en el Parlamento* es una iniciativa ciudadana independiente que tiene como objetivo que la ciencia y el conocimiento científico sean cada vez más importantes en la formulación de propuestas políticas.

#CienciaenelParlamento promueve una cultura política cercana a la ciencia y potenciar una actividad científica centrada en las necesidades de la sociedad. Para lograr este fin, es importante que los responsables políticos y el sector de la ciencia, la tecnología y la innovación en España mantengan contactos regulares que permitan facilitar el empleo de la ciencia de manera efectiva para la toma de decisiones políticas fundamentadas.

nature International weekly journal of science

Home | News & Comment | Research | Careers & Jobs | Current Issue

Metrics such as social improvement, transferability to diverse populations or social contexts, are also used to back research proposals. **Nature 528,193 (Dec.2015)**

Marta Soler-Gallart. Member of the SIS2016 Scientific Committee.

ScienceLit

SCIENCE LITERACY FOR ALL!

About | Partners | Activities | Outputs | News | Contacts

ScienceLit project: Scientific literacy for all! is an ERASMUS+ project which works to make possible one of the current European challenges: to promote and disseminate scientific knowledge among all cultures and sectors of society. So its contribution is to get science closer to adult people, especially those who are in at-risk situation.

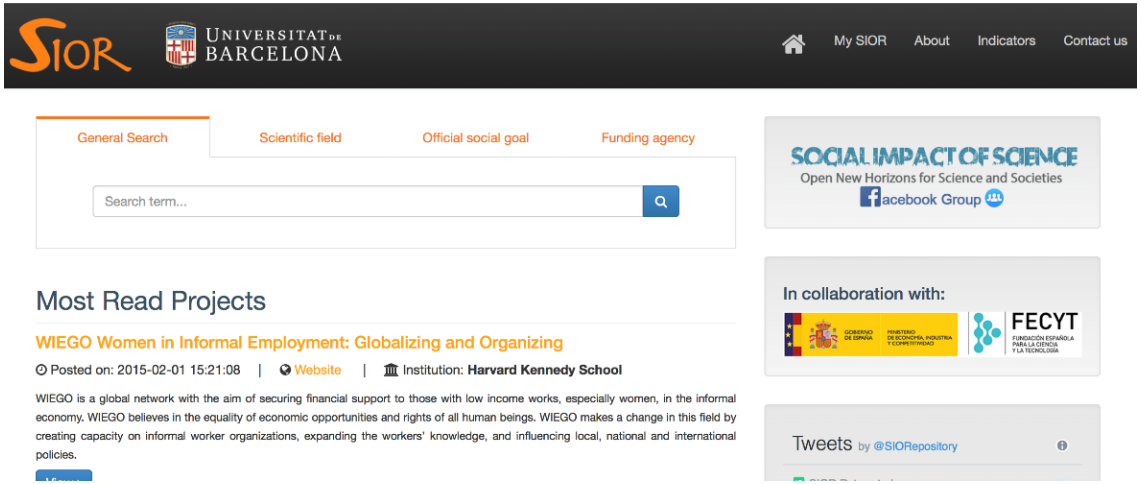
The societal context

- **Adult numeracy to be part of our society**

Horizon 2020

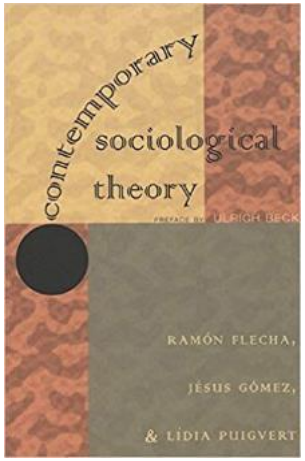
IMPACT-EV
Evaluating the impact and outcomes of EU SSH research

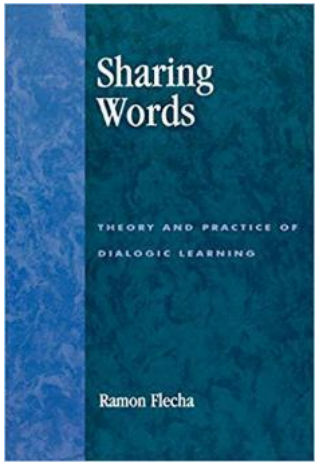
EVIDENCE FOR SOCIETY
Transforming The Future Of European People Through Research



The conceptual context

- **Dialogic turn – Dialogic societies (Flecha, 2000)**





Previous research contributions

- Definition of literacy and numeracy

"Numeracy was defined in ALL as the knowledge and skills required to manage mathematical demands of

Coca-cola

Question 1 and Answer | Question 2 and Answer |

What is the price per can during the sale?

IES NCES National Center for Education Statistics ≡ MENU Search

Adult Literacy and Lifeskills Survey (ALL)

IAP Home | Publications & Products | Staff | Assessments & Surveys | Contact Us

- Overview
- Highlights From the 2003 ALL Survey
- How was ALL administered?
- Sample Design
- What does the cognitive assessment of ALL measure?
- Background Questionnaire (610 KB)
- Sample Items
- Data Files
- Countries
- Partners
- Frequently Asked Questions
- Join NewsFlash

Overview

Conducted between 2003 and 2008, the **Adult Literacy and Lifeskills (ALL) Survey** was an international comparative study designed to provide participating countries, including the United States, with information about the skills of their adult populations. ALL measured the literacy and numeracy skills of a nationally representative sample of 16- to 65-year olds in participating countries in two rounds: first, in 2003 and then again between 2006 and 2008. The original seven countries/territories to participate in the first round were Bermuda, Canada, Italy, Norway, Nuevo Leon (Northern Mexico), Switzerland, and the United States. Four countries participated in the second round: Australia, Hungary, Netherlands, and New Zealand.

Literacy was defined in ALL as the knowledge and skills needed to understand and use information from text and other written formats. Numeracy was defined in ALL as the knowledge

NEWS & HIGHLIGHTS

- Highlights From the 2003 International Adult Literacy and Lifeskills Survey (ALL) - (Revised)

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Previous research contributions

- Development of a framework for key competencies in a knowledge-based society
  - Mathematics literacy
- Definition of *numeracy* and *numerate behavior*
- Learning and teaching in adult education

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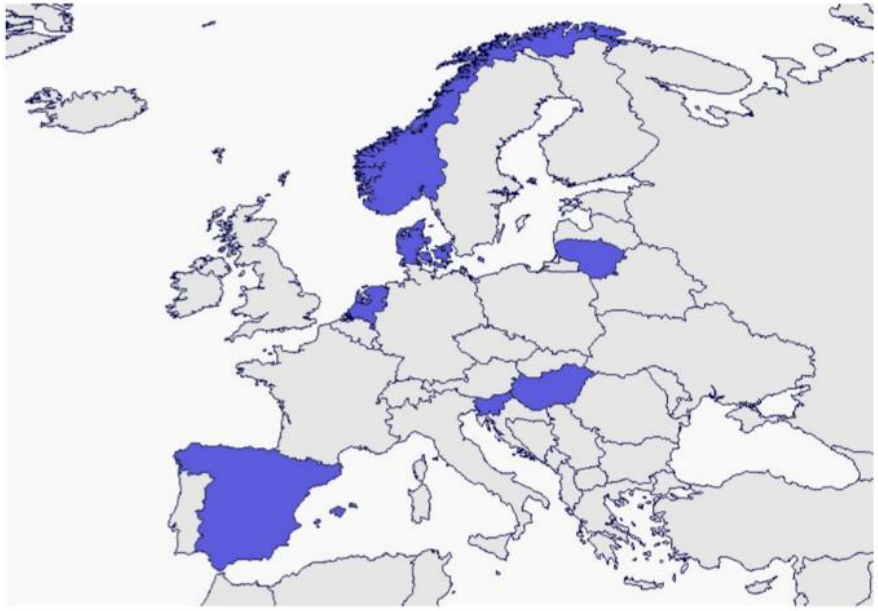
Mathematics in Action

Commonalities across Differences

a Handbook for Teachers in Adult Education



Mathematics literacy

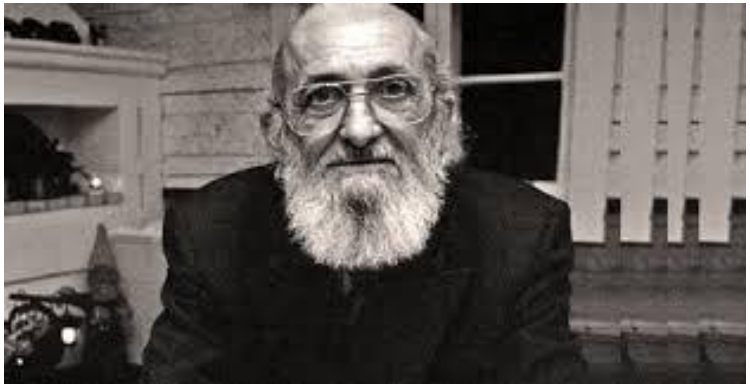
FRAMEWORK FOR KEY COMPETENCES IN A KNOWLEDGE-BASED SOCIETY			
3.1. Mathematical literacy			
	The competence consists of the following elements of knowledge, skills and attitudes as appropriate to the context:		
Definition of the competence	Knowledge	Skills	Attitudes
At the most basic level, mathematical literacy[6] comprises the use of addition and subtraction, multiplication and division, percentages and ratios in mental and written computation for problem-solving purposes	Sound knowledge and understanding of numbers and measures and the ability to use them in a variety of everyday contexts is a foundation skill that comprises the basic computation methods and an understanding of elementary forms of mathematical presentation such as graphs, formulas and statistics.	Ability to apply the basic elements of mathematical literacy such as ● addition and subtraction; ● multiplication and division; ● percentages and ratios; ● weights and measures to approach and solve problems in everyday life, e.g.: ● managing a household budget (equating income to expenditure, planning ahead, saving); ● shopping (comparing prices, understanding weights and measures, value for money); ● travel and leisure (relating distances to travel time; comparing currencies and prices)	● Readiness to overcome the 'fear of numbers'. ● Willingness to use numerical computation in order to solve problems in the course of day-to-day work and domestic life.

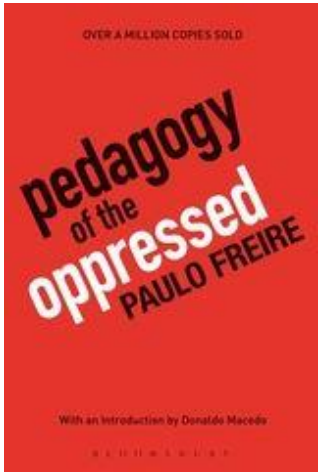
Numeracy is a math-containing everyday competence that everyone, in principle, needs in any given society at any given time. (Lindenskov & Wedege, 2001)

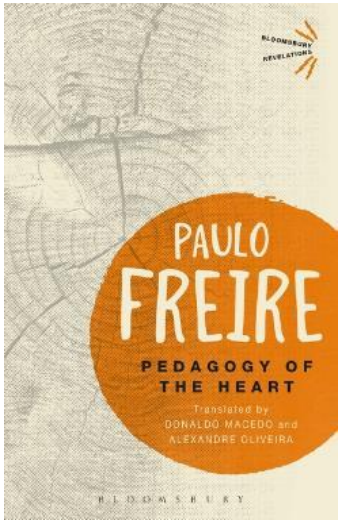
“To be numerate means to be competent and comfortable with one‟s judgements on whether to use mathematics in a particular situation and if so, what mathematics to use, how to do it, what degree of accuracy is appropriate, and what the answer means in relation to the context.” (Coben, 2000 p.10)

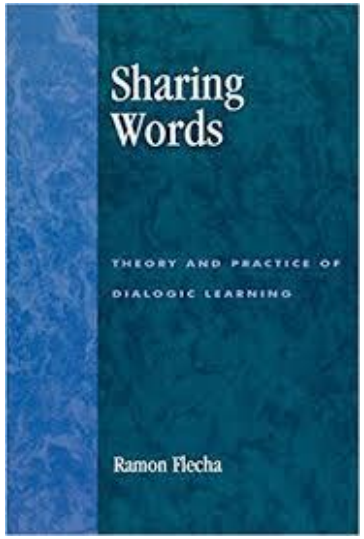
Numeracy is a dynamic concept that can be defined as the individual‟s competence to manage mathematical situations in everyday life, at work and in societal life and to accommodate flexibly to new demands in a continuously changing society (Van Groenestijn, 2002)

Learning and teaching in adult education



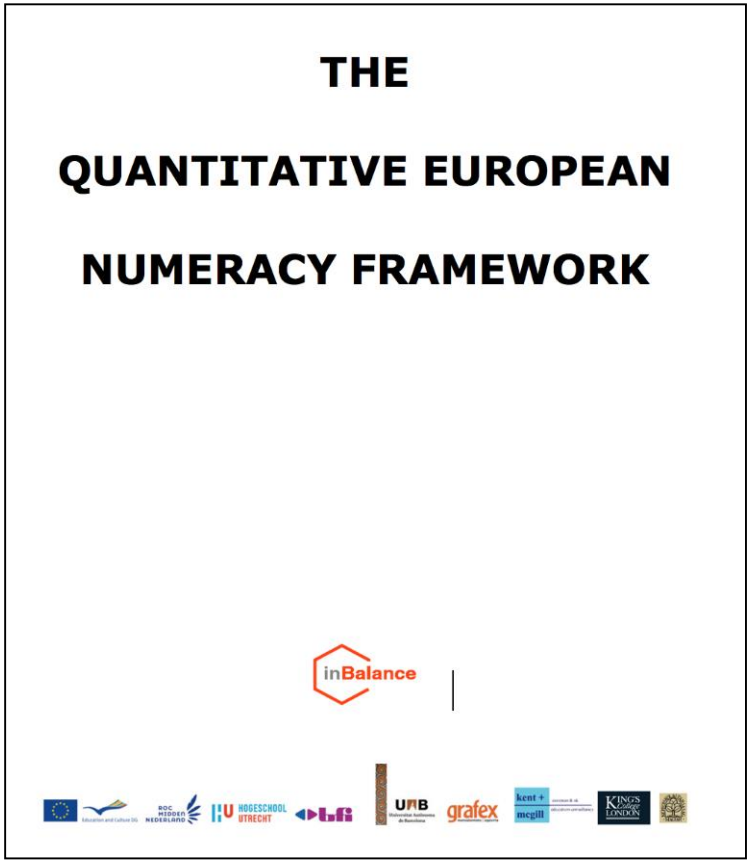






Previous research contributions

- Numerate behavior (Gal, van Groenestijn, Manly, Schmitt & Tout, 1999)
- Complexity factors
- Aligned with ISCED levels of education for comparability



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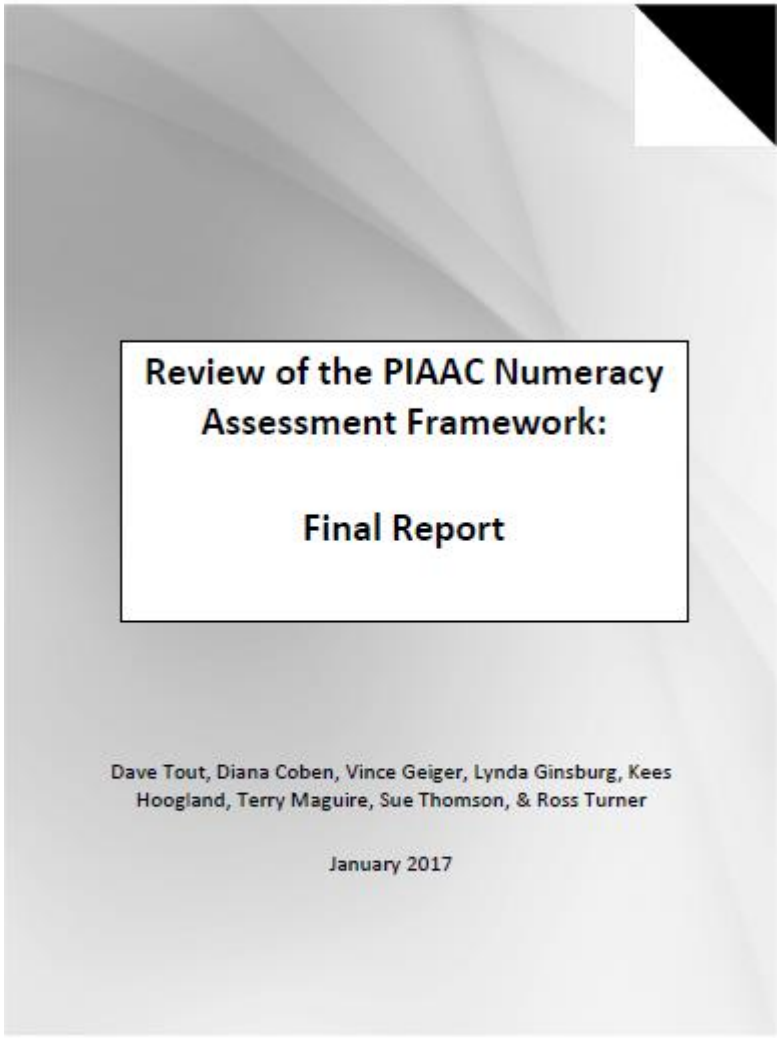
OECD Education Working Papers
No. 35

PIAAC Numeracy: A Conceptual Framework

PIAAC Numeracy Expert Group

OECD



Australian Council for Educational Research

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Numeracy *is the ability to access, use, interpret, and communicate mathematical information and ideas, in order to engage in and manage the mathematical demands of a range of situations in adult life*

Numerate Behavior *involves managing a situation or solving a problem in a real context, by responding to mathematical content/information/ideas represented in multiple ways.*

Numerate behavior involves ***managing a situation or solving a problem in a real context*** (everyday life, work, societal, further learning) ***by responding*** (identifying, interpreting, acting upon, communicating about) ***to mathematical information*** (quantity & number, dimension & shape, pattern & relationships, data & chance, change) ***that is represented in a range of ways*** (objects & pictures, numbers & symbols, diagrams & maps, graphs, tables, texts, formulae) ***and requires the activation of a range of enabling processes and behaviors*** (mathematical knowledge and understanding, mathematical problem solving skills, literacy skills, beliefs and attitudes). (Gal et al, 1999)

Coverage: Facets of Numerate behavior…

Involves managing a situation or solving a problem…

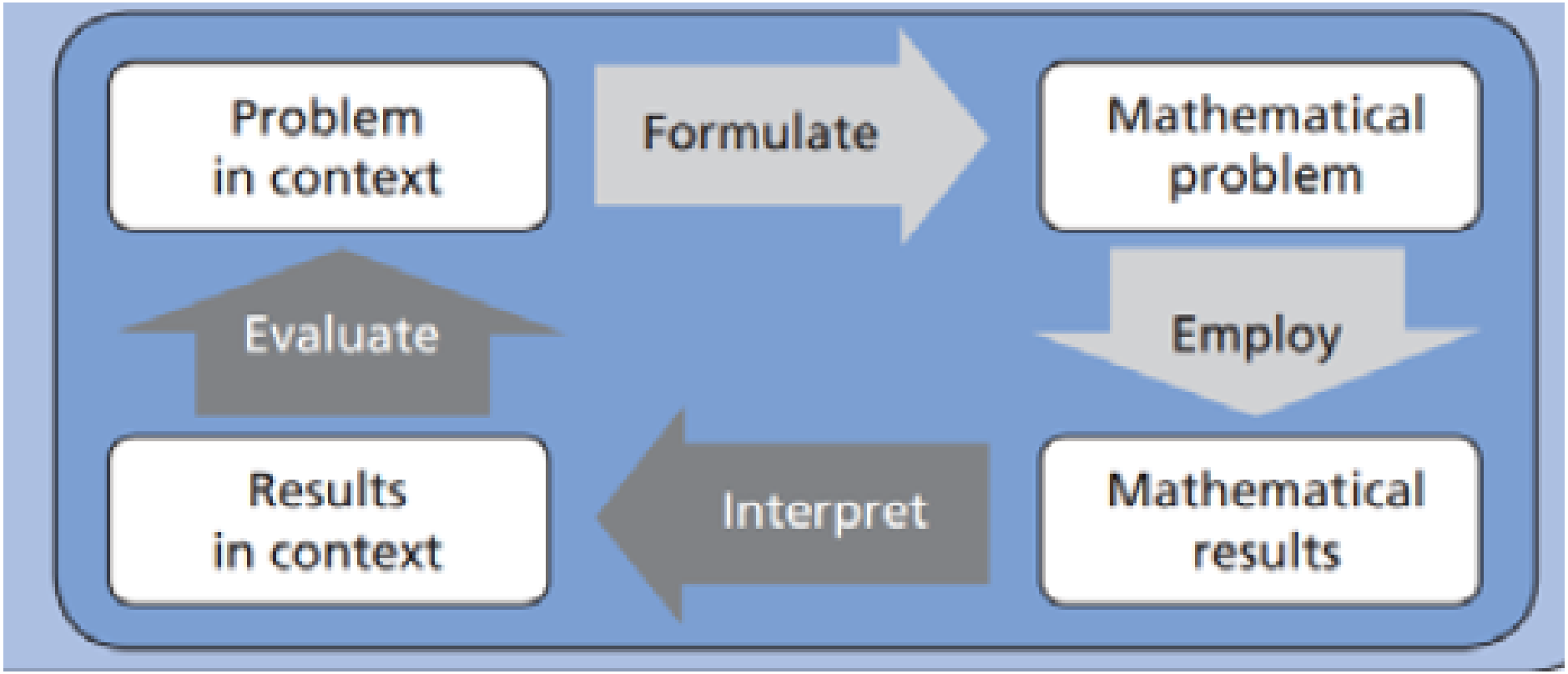
1. **in a real context…**
   everyday life, work, societal, further learning
2. **by responding…**

10% - identify, locate or access
40% - act upon, use: order, count, estimate, compute, measure, model
30% - interpret, evaluate
20% - communicate

3. **to mathematical content/ information/ ideas…**

30% - quantity & number
20% - dimension & shape
30% - patterns, relationships, change
20% - data & chance

4. **represented in multiple ways:**
   - objects & pictures
   - numbers & mathematical symbols, formulae
   - diagrams & maps, graphs, tables
   - texts
   - technology-based displays


Problem in context
Formulate
Mathematical problem
Evaluate
Employ
Results in context
Interpret
Mathematical results

Discussion points for a Common European Numeracy Framework

- How central is the problem solving / modeling cycle?
- Processes, domains, contexts , representations:
  - Which could act as main category?
  - Which as second category to create a matrix?
- Which 21st century (or higher order skills are the most fundamental for numeracy to be worked out?

21st century skills

- Critical thinking
- Creative thinking
- Problem solving
- Self regulation
- Cooperation
- Communication
- Social and cultural skills
- ICT skills
- Information skills
- Media literacy

Thank you for your attention and input !

Kees Hoogland kees.hoogland@hu.nl
Javier Díez-Palomar jdiezpalomar@ub.edu
Madeleine Vliegenthart m.vliegenthart@thomasmorehs.nl