

Meeting the Numeracy Challenge

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Ice Breaker (Making Connections)

Individuals are given a card with a number/fraction/decimal they are asked to connect with someone with an equivalent number e.g. $\frac{1}{2} = \frac{3}{6}$ Then they have to elicit two number facts from the connected person(s) to share with the rest of the group as an 'introduction' exercise.

Literacy Practice

- A holistic view is taken of literacy practice literacy, numeracy ICT subjects/aspects of practice.

Is Numeracy Important?

- International survey results
- Employment trends
- 'The forgetting effect'

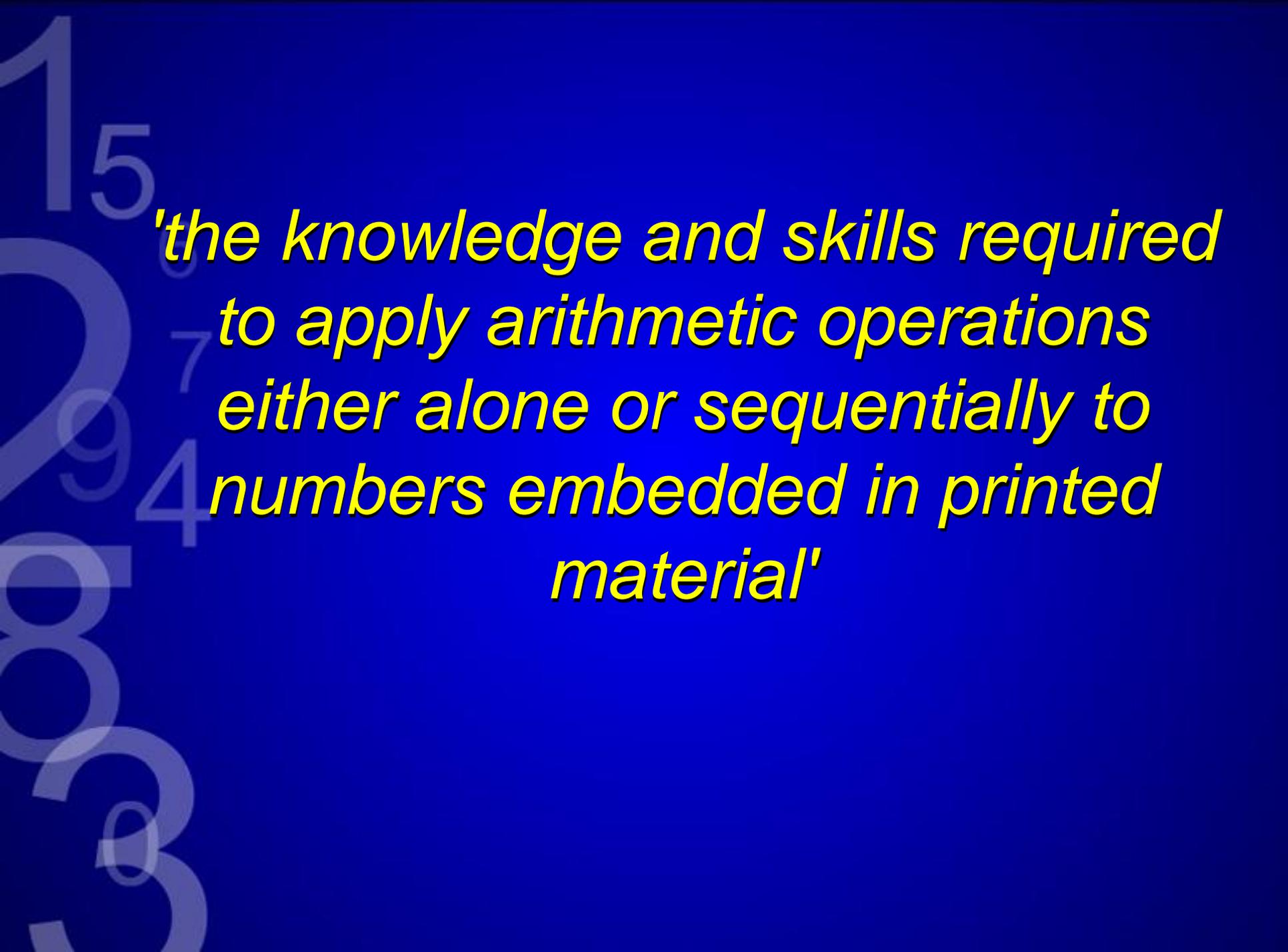
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Numeracy development
lags behind literacy
development



Key Developments

- Crowther
- Cockcroft
- IALS
- ALLS
- PISA



*'the knowledge and skills required
to apply arithmetic operations
either alone or sequentially to
numbers embedded in printed
material'*

'the critical awareness that builds bridges between mathematics and the real world in all its diversity'.

(Johnston, 1994, p. 34).

Numerate Behaviour Involves

Managing a situation or solving a problem in real context

Everyday life

Work

Societal

Future learning

by responding to

Identifying or locating

Acting upon

Interpreting

Communicating about

Information about mathematical ideas

Quantity and number

Dimension and shape

Pattern and relationships

Data and chance

Change

That is represented in a range of ways

Objects and pictures

Numbers and symbols

Formulae

Diagrams and maps

Graphs

Tables

Texts

and requires activation of a range of

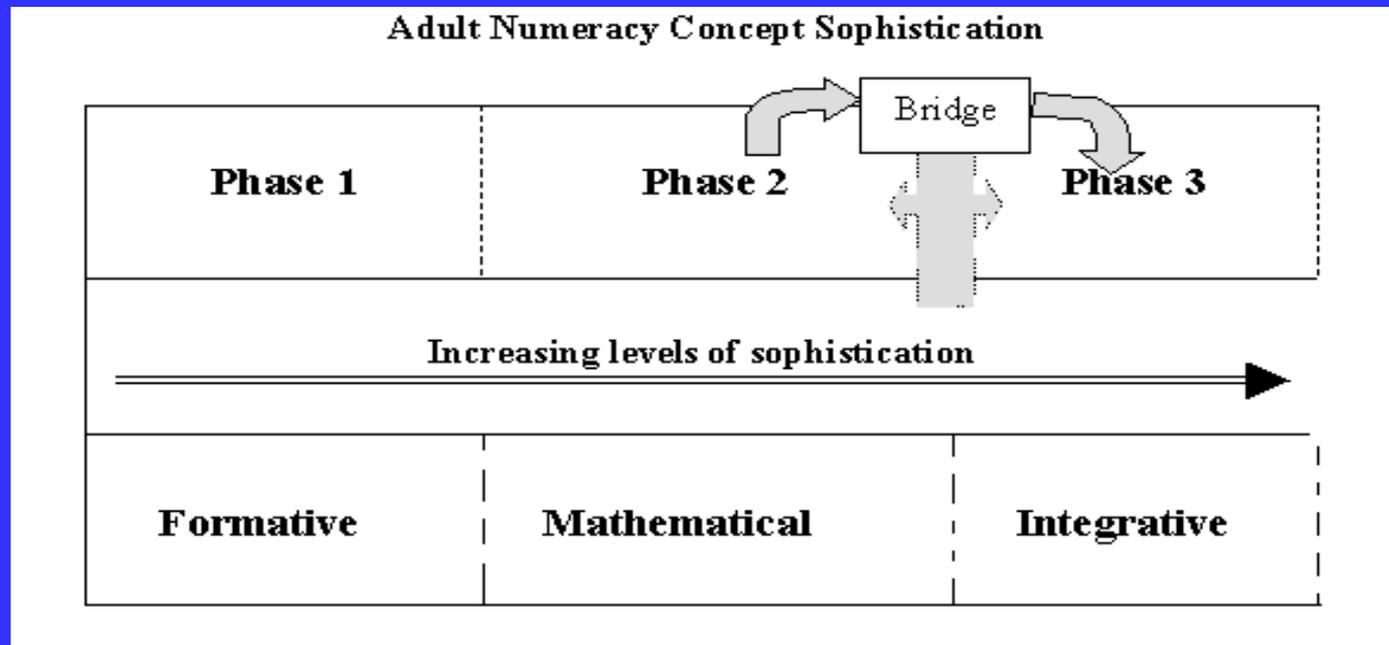
enabling knowledge, behaviours and processes

mathematical knowledge and understanding

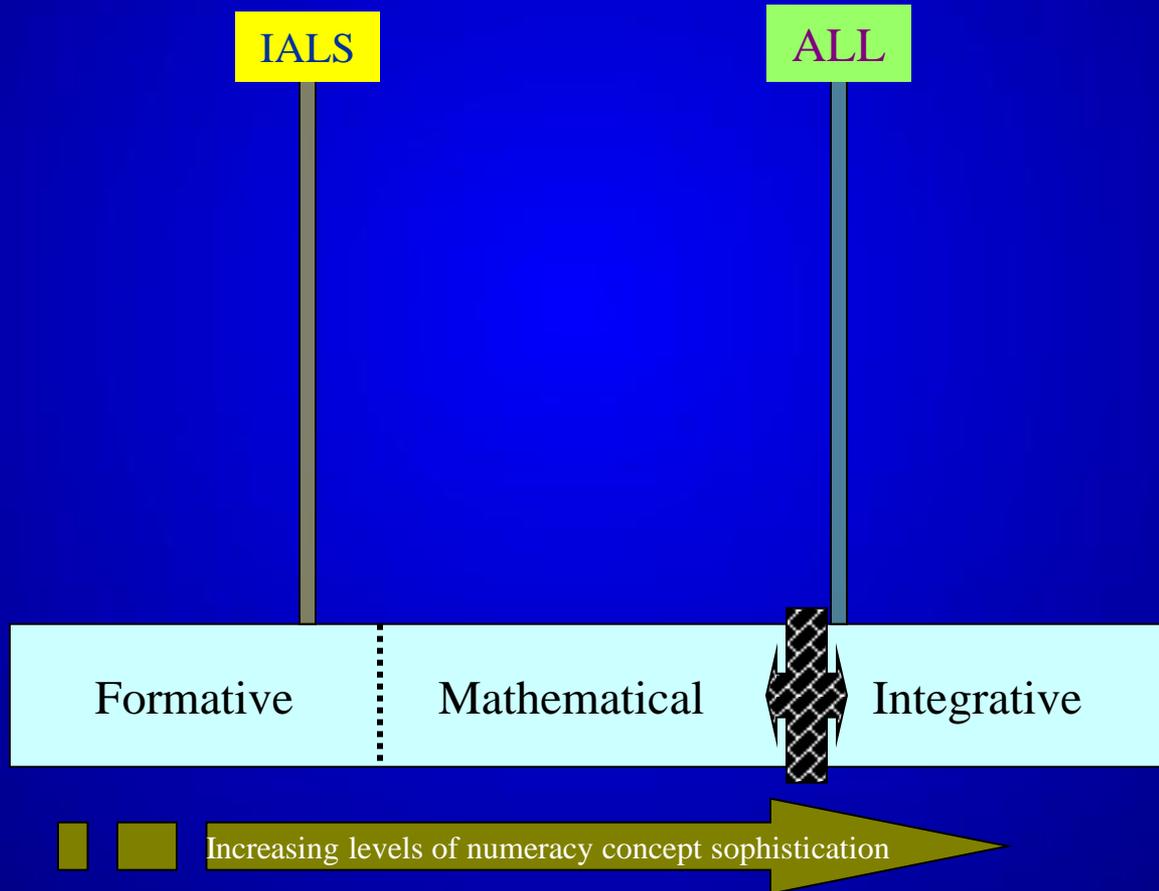
mathematical problem solving skills

literacy skills, beliefs and attitudes.

Adult Numeracy Concept Sophistication



Framework of Numeracy Concept Sophistication



Activity on Continuum (Handout with 3 frameworks)

Ask individuals/small groups to consider

- placing their own view of numeracy on the continuum.

Activity on Continuum

(Handout with 3 frameworks)

Ask individuals/small groups to consider

- placing their own view of numeracy on the continuum.
- Place their country on the continuum (in theory i.e. what is described in policy documents)
- In practice i.e. the type of numeracy provision actually on the ground.

Challenges and Opportunities

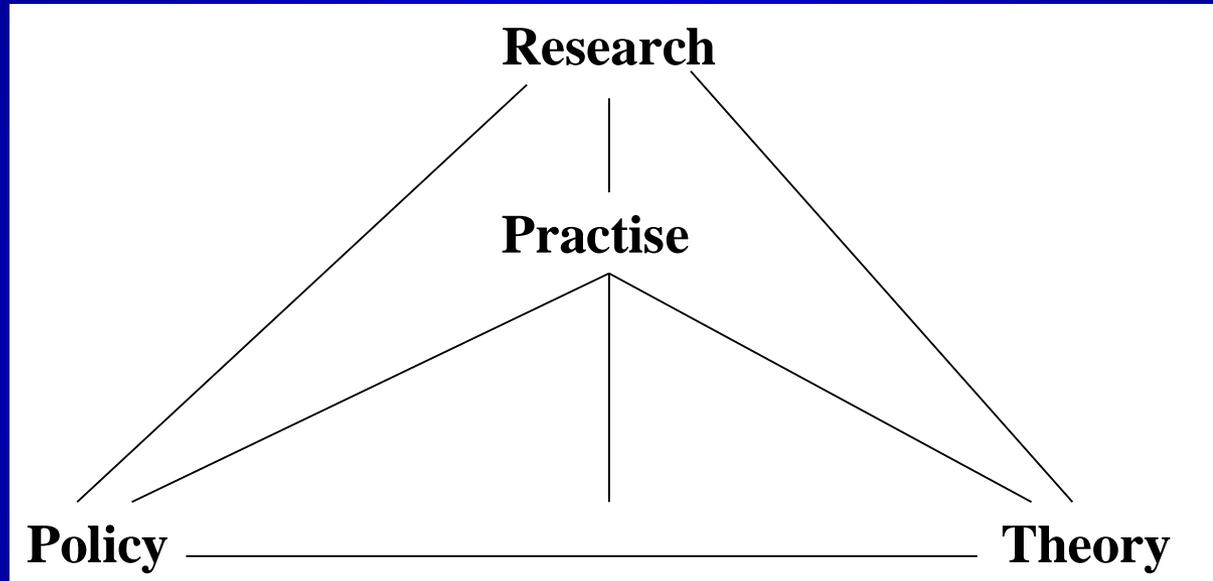
- This is the framework we will use for assimilating the feedback from the groups.

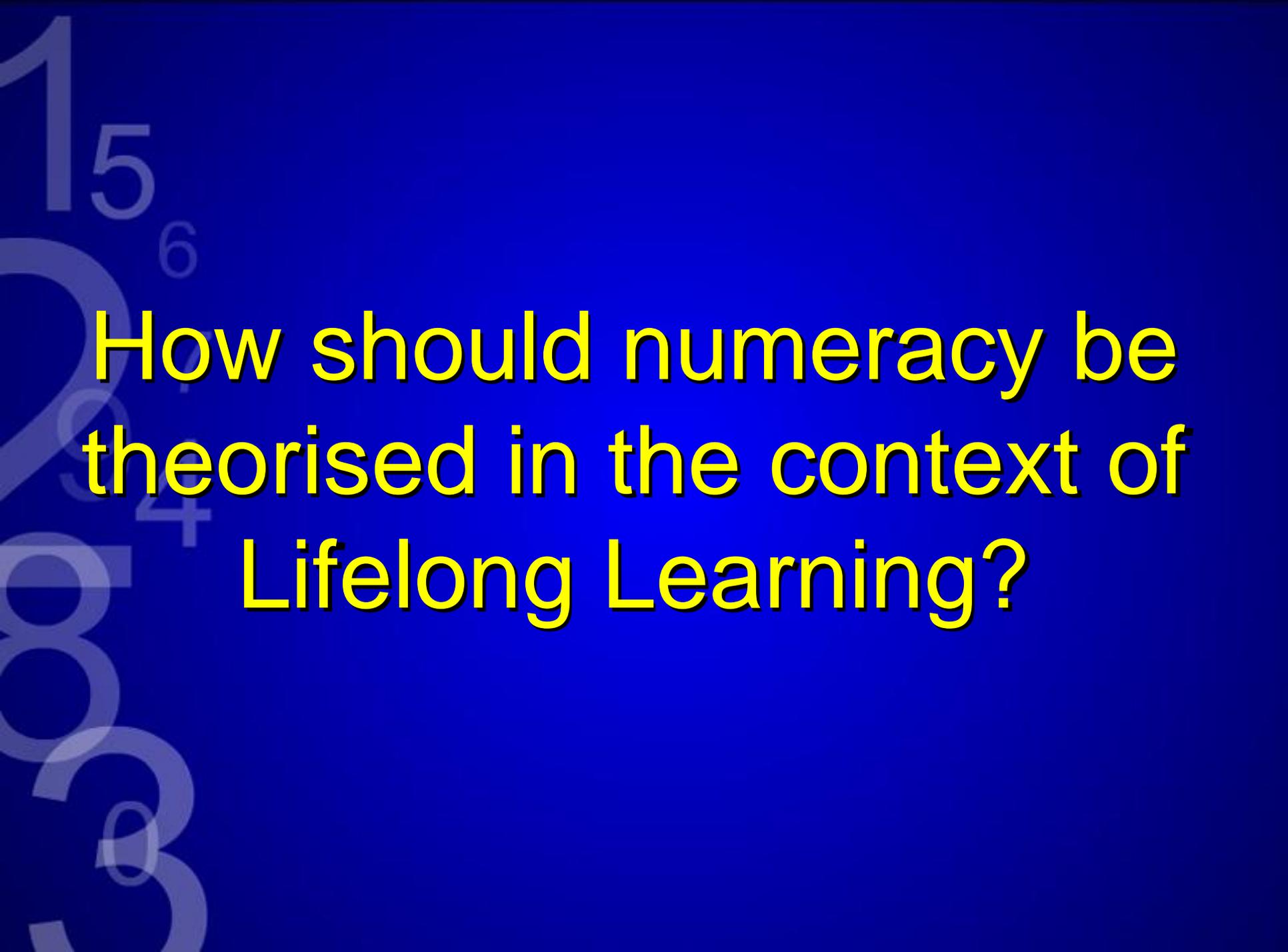


Types of Numeracy Provision

- School Linked
- Further Education (Post Compulsory)
- WorkPlace
- Community
- Offender Institutions
- ESOL
- Independent Training Providers
- Accredited and non accredited

Research as an Opportunity





How should numeracy be theorised in the context of Lifelong Learning?

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Any theorisation of numeracy in the context of lifelong learning must enable:

- Policymakers and service providers
- Teacher educators
- Teachers
- Individual learners

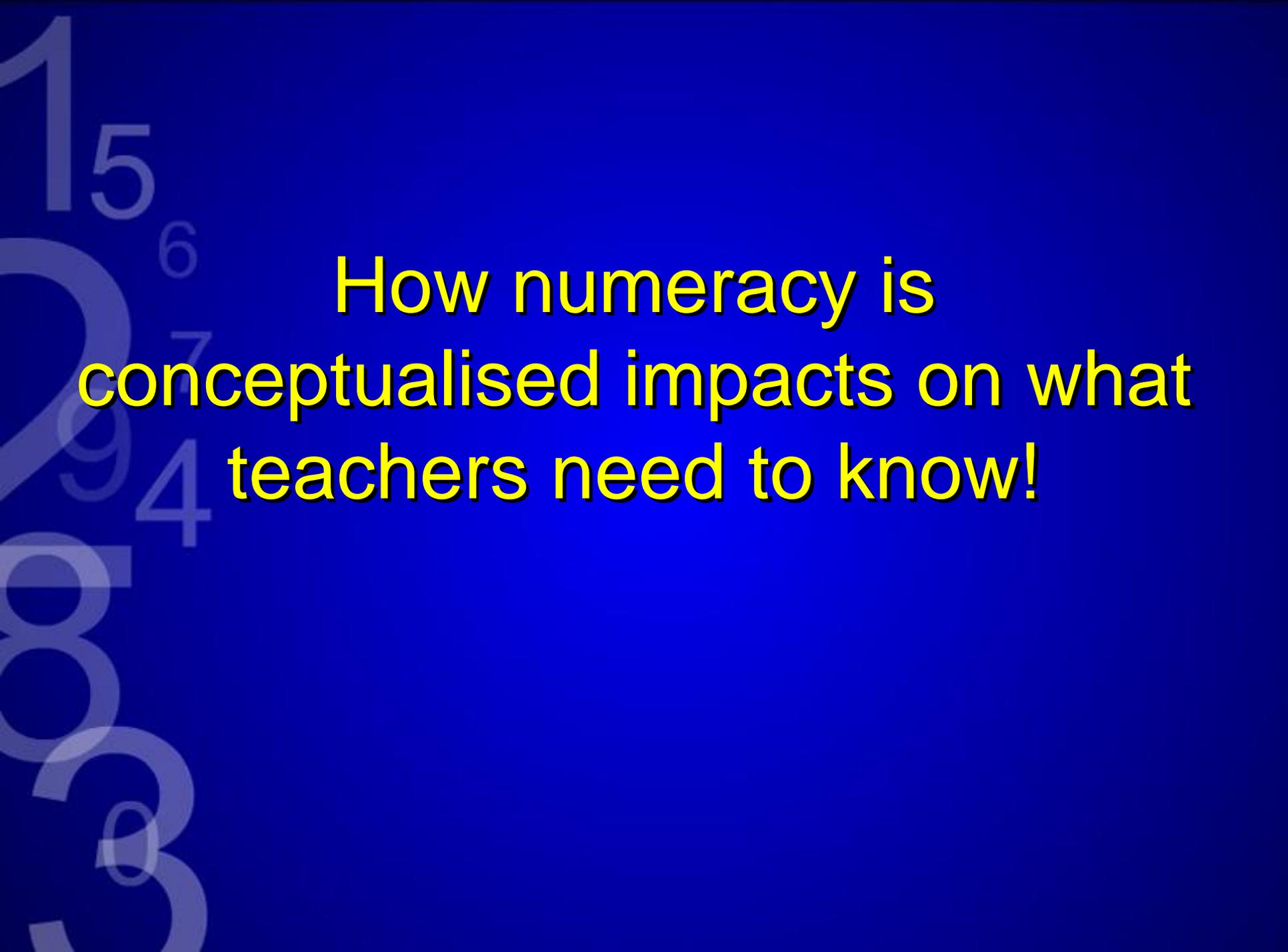
Essential Skills for living Definition of Numeracy

‘the ability to communicate by talking and listening, reading and writing; to use numeracy; and the ability to handle information.’

NALA Definition of Numeracy

The concept of numeracy must be theorised as a complex construct that sees numeracy as 'more than mathematics'.

The concept of numeracy must incorporate mathematical, cultural, social and emotional aspects along with real life experience, knowledge and skills.



**How numeracy is
conceptualised impacts on what
teachers need to know!**

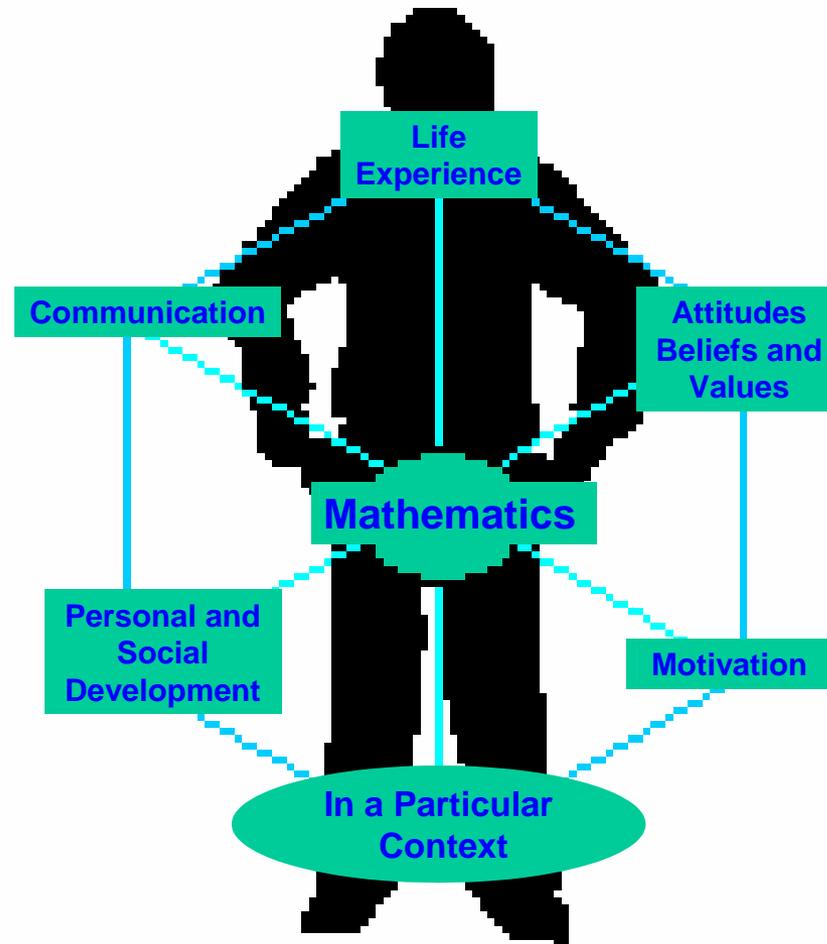
What do numeracy teachers need to know?

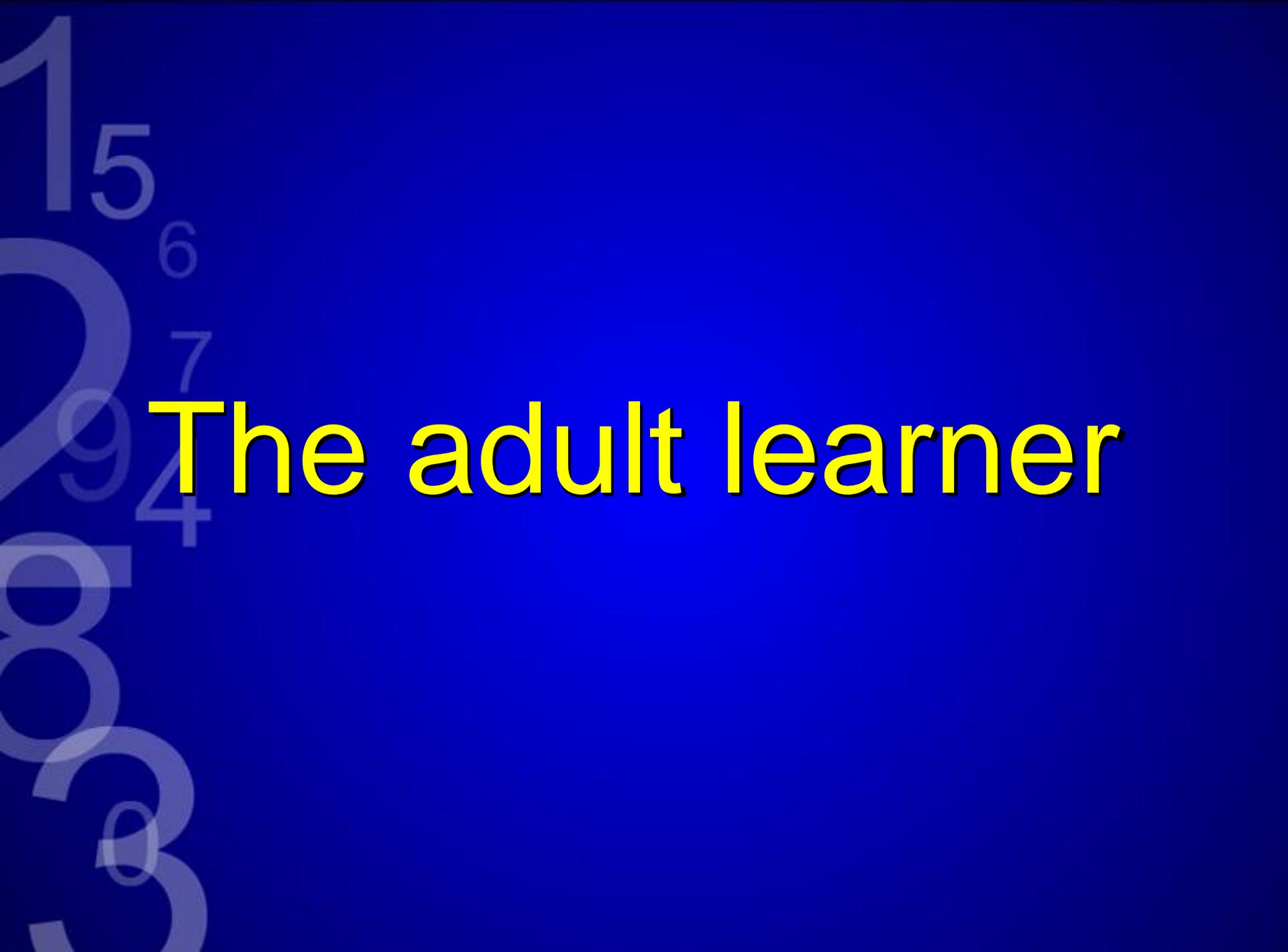
Teaching numeracy to adults is not teaching at a lower level, but really at a higher level because of the complexity of each individual's numeracy.

Activity on Individual Numeracy Strategies for solving numeracy problems

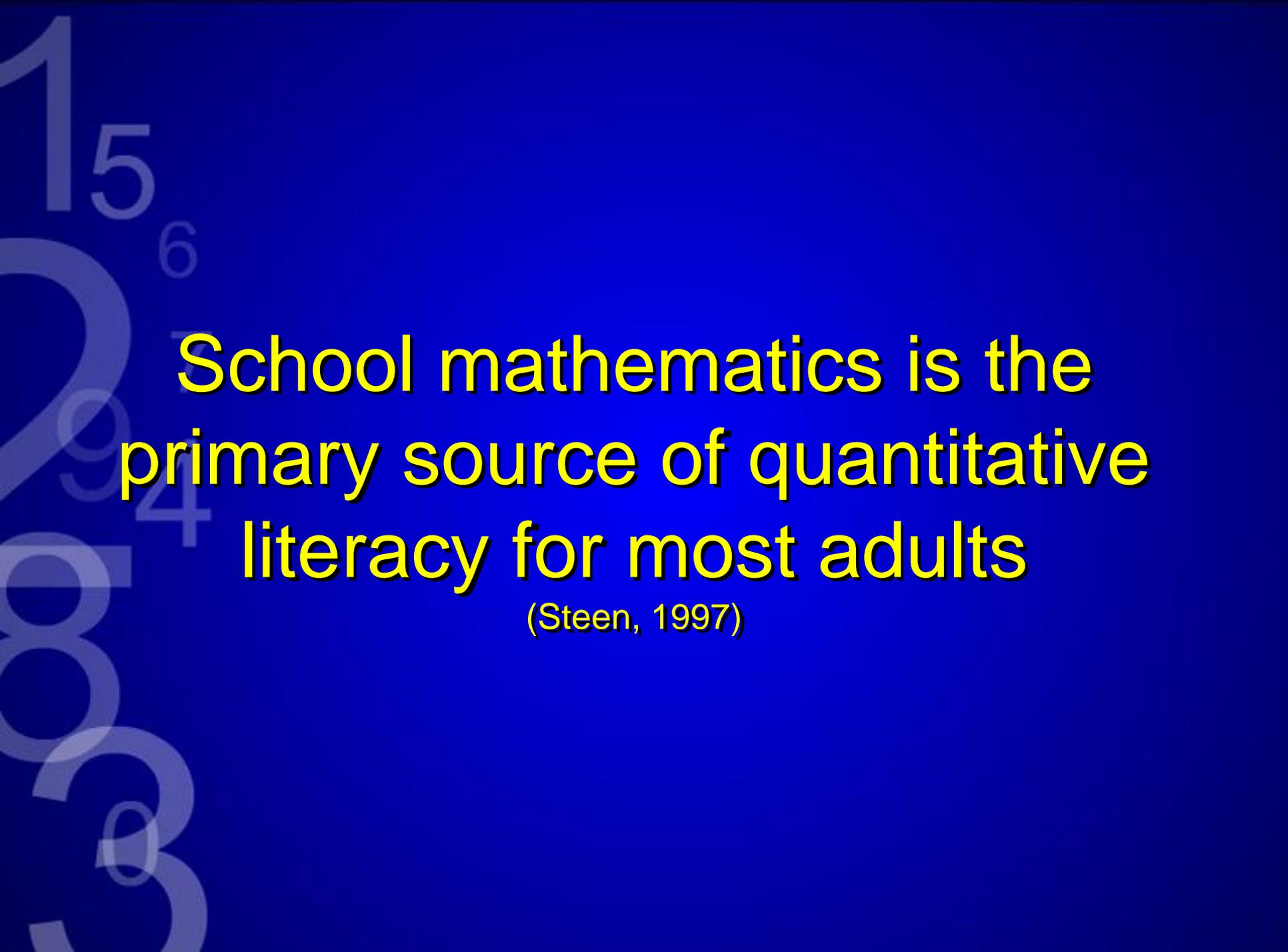
- Sum to do and write down how solved mentally. Share in small groups.
- Football card

An Individual's Numeracy





The adult learner



**School mathematics is the
primary source of quantitative
literacy for most adults**

(Steen, 1997)

School Mathematics

- lower numbers of students enrolling in Higher mathematics in upper secondary school.
- widespread under preparedness in the students continuing to Higher education, in numerate disciplines.
- significant numeracy problems in the adult population (IALS, 1997) and in young adults (Pisa, 2005)
- general unwillingness of adult learners to engage further with mathematics.

The Adult Learner

- Need to know
- Self concept
- Role of experience
- Readiness to learn
- Orientation to learning
- Motivation
- Anxiety

Activity Maths History Timeline

- Individuals asked to indicate on a provided timeline positive (☺) and negative (☹) of mathematics/numeracy.

Adult's Maths Histories

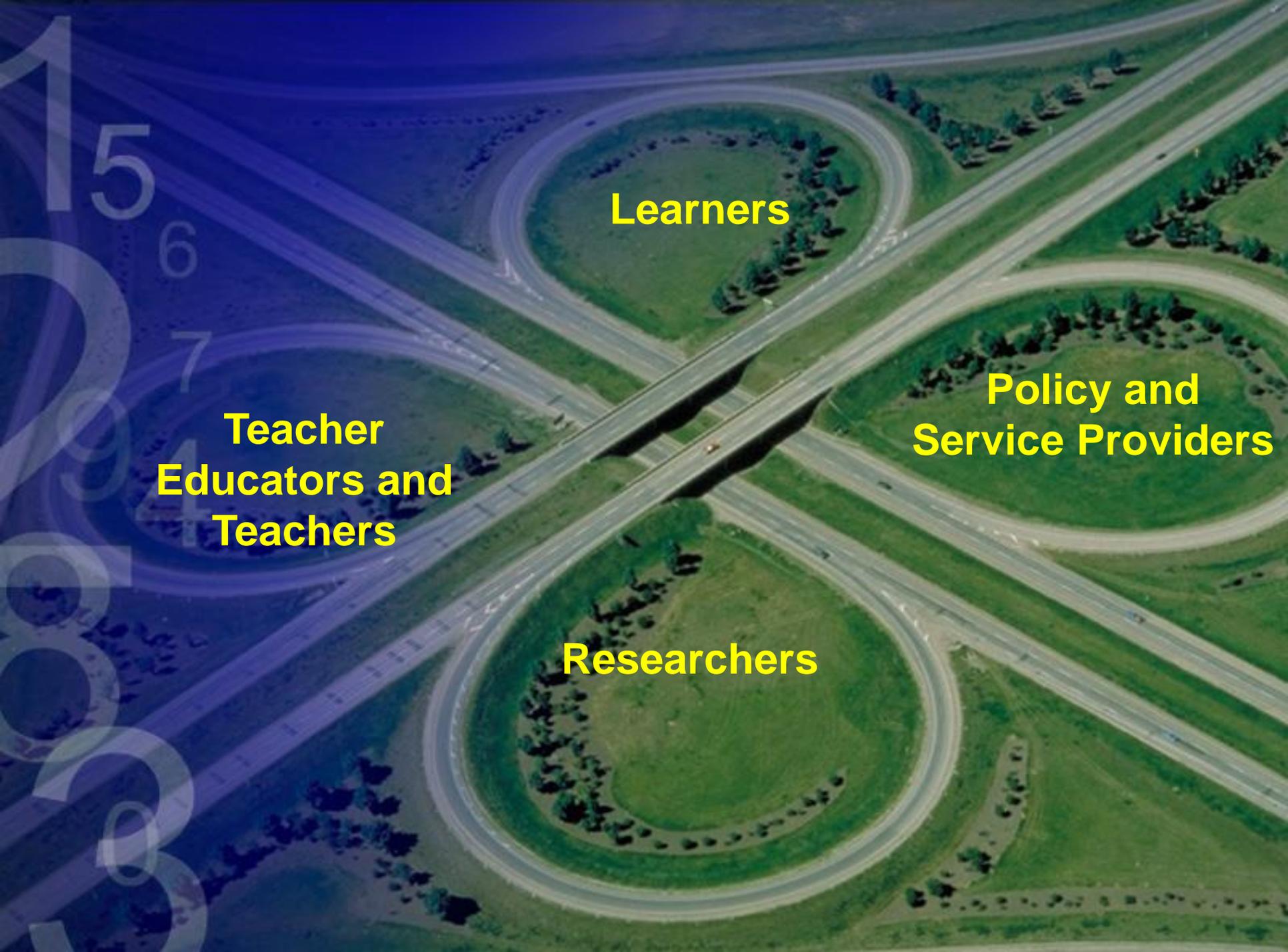
- the 'brick wall'
- the 'significant other'
- the 'door' marked 'mathematics'
- 'Invisible maths' or 'just common sense'

(Coben, 2005, p. 20).

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Numeracy in the context of a lifelong learner must enable a connectedness among:

- Researchers
- Policymakers and service providers
- Teacher educators and Teachers
- Individual learners



Learners

**Policy and
Service Providers**

**Teacher
Educators and
Teachers**

Researchers

Planning the Journey

'Meeting the Numeracy Challenge'

On the One Road



Travelling Together!



Activity on connectedness

- Group to form a circle: leader hold end of large ball of wool /ribbon,pass ball to another individual and ask question re workshop; individual holds the end and passes to another individual and ask question. Result after many questions is a woven connected ribbon-interconnecting all participants to one or more individuals.
- Sum up