

# INTRODUCTION

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## THEORY AND PRACTICE OF MATHEMATICS EDUCATION FOR ADULTS

Our world is dominated by technological developments: The philosopher Heinz Hülsmann wrote that “Atom, Gen and Bit” are the three basic principles now (see Hülsmann, 1985). Each of the so-called new technologies is based upon mathematics: The first computer was built as a part of the Manhattan Project to calculate models of the atomic bomb. The human genome project uses computers very often to find out the structure of the genome. And computers are mathematical machines, materialised mathematics.

Social organisations, companies, and not least governments use computers to process information. A precondition for this is to formalise the social or economical structure which “produces” the information. This formalisation is a type of mathematisation, too. The social and economical models of organisations or companies are a part of the process of mathematising the world.

Last, but not least, mathematics is a part of everyday life and work. People handle money, buy things, do handywork at home (measure areas to paint, and so on). All together, mathematics is not only the basis for technology, economy, work and everyday life, but a part of our culture.

It seems clear that everyone in our society should know more about this. Learning mathematics in the traditional way is not enough. But the tendency in school (enforced by many governments) is not to learn more and different aspects of mathematics (for example, modelling or statistics) but to learn less. Research in many countries shows that people forget most of the algorithms they learned at school. They are left with the feeling that mathematics is useless. And they do not like mathematics because they remember a lot of bad situations at school.

Mathematics education for adults is very important in this situation. Mature people have to learn what they did not learn at school or what they need to get a (better) job. Younger people would like to reach higher formal qualification levels in order to have better chances in life. And all people (as citizens) should know much more about mathematics in our society. This is not only helpful to get more money or a better job but also to have more chance of taking part in political discussions. Democracy depends upon understanding the world we live in.

Mathematics education for adults should not repeat the past mistakes of school teaching. Adult learners have different knowledges and different abilities. In most mathematics courses or open learning situations adults should primarily get the feeling that this is not a repeat of the typical school situation that served them badly in many cases. New and better ways of teaching are necessary.

It is a very important task for all teachers to find such new ways. Good mathematic educators find such ways. But only a very few of these good teachers start to communicate about their ways of teaching. There is very little literature about good ways of teaching mathematics for adults.

We think that there are several reasons for this:

- In many countries teaching mathematics for adults is not a primary occupation but an additional job for people with other formal positions such as engineer, teacher at school, university students or even literacy teachers.
- Only a very few teachers reflect on their work as researchers and then document it for the sake of others. This would be additional and unpaid work for them.
- Only a very few university mathematics educators are working in the area of mathematics education for adults. Most of them are only concerned with teaching at school.

Dr. Gail FitzSimons is a very positive example of a teacher who has started to reflect on this situation. She has published many papers on its different aspects, and this book gives a very good overview. It shows the actual status of international discussion, giving a detailed analysis of the situation in Australia as an example of the (potential) situation in other countries with similar political orientations. In short: Everyone who starts working in and thinking about the field of adults learning mathematics should read this book.

#### REFERENCE

Hülsmann, H. (1985). *Die technologische Formation-oder: Lasset uns Menschen machen*. Berlin Verlag Europaeische Perspektiven.



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What Counts as Mathematics?  
Technologies of Power in Adult and Vocational  
Education

FitzSimons, G.E.

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