

# Democratic access to digital information

Lena Lindenskov

Department of Educational Theory and Curriculum Studies

Danish School of Education, Aarhus University

lenali@edu.au.dk

*Official governmental documents in some countries mention democracy, digitalisation, and mathematical competence through education as closely connected terms. Not much is known about how democracy, digitalisation, and mathematical competence through education relate to each other in adult mathematics education in practice? As a starting point, this presentation compares how official governmental documents use the terms in two neighbour countries, which are both Nordic welfare states. The two countries are my own country Denmark and the country of ALM 26 conference Sweden. Secondly, I critically investigate and discuss if and how adult mathematics education practice connect and potentially could connect the mentioned terms. I do this by using sociological theory on equity as access, chance and outcome in order to understand how adults can engage mathematically with digital information in order to participate as citizens in a democratic society. Finally, I exemplify the practical implications for adult mathematics education.*

## Background

In democratic societies like the Danish and Swedish, adult education serves several aims, one of which is to let participants develop their capability to engage in democratic acts and communication. For instance, the national goals for adult education in Denmark for Preparatory Adult Education<sup>1</sup> include ‘to give adults possibilities to improve and supplement basic skills for strengthening prerequisites for active participation in all parts of societal life’<sup>2</sup>. The national goals in Denmark for Preparatory Mathematics Adult Education<sup>3</sup> include ‘to increase the participants’ possibilities to cope, process and produce math-containing information and materials’<sup>4</sup> Other educational aims in Denmark are to increase labour market qualifications and capabilities to enter and complete further training and education (Lindenskov, 2018).

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<sup>1</sup> In Danish language: Forberedende VoksenUndervisning, FVU

<sup>2</sup> Consolidation Act no 602 from 23/05/2019

<sup>3</sup> In Danish language: Forberedende VoksenUndervisning Matematik, FVU Matematik.

<sup>4</sup> In Danish language: at overskue, behandle og producere matematikholdige informationer og materialer i hverdagen

At the conference, I will present a comparison between the Danish and the Swedish national goals. The Swedish National Strategy for digitizing education also says ‘Digital competence is basically a democracy issue’. The press message is that ‘Sweden will be the best in the world to take advantage of the potential of digitizing. Education policy has an important role to play in achieving this ambition. The government has therefore developed a national digitization strategy for the school system.’

In my experience, the visionary ideas above are a lot easier to formulate than to implement in practice. It is not quite clear what is the actual meaning of the visionary ideas of capacity to engage in democratic acts and communication, ‘strengthening prerequisites for active participation in all parts of societal life’, and ‘digital competence is basically a democracy issue’. In my view, quantitative as well as qualitative studies are still needed of how adult education can support citizens to critically engage with available digital information, and to answer the question on how we should address equity? (Gutiérrez, 2012,p.18)

## **Method**

First, I develop a theoretical underpinning for investigating citizens’ democratic access to digital information. I am inspired by the discussion of what is equity in mathematics education (Gates & Vistro-Yu, 2003) and by three sociological dimensions of equity: ‘the simple equity of access’, ‘equity of chance’, and ‘equity of outcome’. I present my interpretation of how to use Gates & Vistro-Yu’s ideas of equity in mathematics education to investigate adult learners’ democratic access to digital information. With this background, I analyse some exemplary numerical information in digital media in Denmark and Sweden. I have chosen to use big national television broadcast websites, and to analyse information given at some random chosen dates.

## **Findings**

Sometimes the numerical and geometrical information presented on these websites is distinct, with a clear impact on the narratives being told, but at other times the numerical and geometrical information plays a minor role.

At the ALM-conference I will present analyses and findings from April 2019 on the airplane company SAS and on cruise-ships in harbours in Denmark. The numerical information displayed includes 72,000 passengers, 13%, 2.3%, 40%, ‘4 to 5 working days’, 200 mg NO<sub>2</sub> per cubic meter, max 18 days per year, 25-70 meters high.

## **Practical Applications**

In the national curricula in Denmark the idea of ‘mathematical awareness’ is described. In my view, mathematical awareness – also as a democratic awareness - is in itself important: It is important to notice mathematical information and to consider how the information is meaningful or not for society as well as for individuals. Nevertheless, new mathematics learning

materials for adults need to be developed, as well as new teaching methods (Frankenstein, 1983) (Lindenskov, 2014).

## References

- Frankenstein, M. (1983). Critical mathematics education: an application of Paulo Freire's epistemology. *Journal of Education*, 165 (4), 315-339.
- Gates, Peter and Vistro-Yu, Catherine (2003). Is mathematics for all? In: Bishop, A.J.; Clements, M.A.; Keitel, C.; Kilpatrick, J. and Leung, F. K.S. (Eds) *Second International Handbook of Mathematics Education*, p. 31-74. Dordrecht: Kluwer Academic Publishers.
- Gutiérrez, R. (2012). Context Matters: How Should We Conceptualize Equity in Mathematics Education? In: B. Herbel-Eisenmann, D. Wagner, J. Choppin, D. Pimm (Eds.) *Equity in Discourse for Mathematics Education: Theories, Practices, and Policies*, p. 17-33. Springer: Mathematics Education Library. DOI 10.1007/978-94-007-2813-4\_2, ©
- Lindenskov, L. (2018). Danish approaches to adults learning mathematics - A means for developing labor market skills and/or for bildung? In: K. Safford-Ramus, J. Maaß, E. Süß-Stepancik (Eds.). *Contemporary Research in Adult and Lifelong Learning of Mathematics - International Perspectives*. Springer.
- Lindenskov, L. (2004). Aviser i matematikundervisningen? hvorfor og hvordan?: - matematisk opmærksomhed med og mod avisen som medie. LAMIS Sommerkurs-rapport 2003: *Matematikk i Livet*, p. 58-82. Trondheim: NTNU, Norges teknisk-naturvitenskapelige universitet.