Sustainable Education in a Digital Age of rapidly Emerging Technologies

IFIP TC3 Zanzibar Declaration – Outcomes of Webinar 1:
Social Impacts of Big Data Analysis and Machine Learning – Educational Implications

08 March 2021, 09.00-10.30 a.m. GMT

IFIP TC3 is taking forward the Zanzibar Declaration (ZD) through a series of four webinars and a follow-up conference. The first webinar was on the topic "Social Impacts of Big Data Analysis and Machine Learning – Educational Implications".

Over 100 participants were registered for the webinar, and over 60 took part in the event live. Accompanied by 2 co-moderators, 5 panellists from different countries (Australia, France, India, and Turkey) discussed the topic from different perspectives and from their respective cultural and working contexts.

Further information on the panellists and the content and discussion of the webinar can be found on the ZD website:
https://zanzibardeclaration.cicei.org

The webinar was recorded and the video can be viewed asynchronously:
https://vimeo.com/520898531/a37dea562a

Examples of statements and questions discussed in the webinar were:

- The meanings of 'Data Science', 'Data Analysis', and 'Data Mining' are not transparent. Behind the terms are different meanings and concepts. They must be clarified to avoid misinterpretation in communication between stakeholders from various professional areas.
- Potential educational benefits of automated learning analytics and its applications should be critically examined.
- The usefulness of machine learning and big data assessment depends on the application context. Education needs to be holistic in its aims and to build on diverse interdisciplinary perspectives. Education is not only concerned with content knowledge, but also, importantly, agency (to enable students and teachers to work, dream, and anticipate the impact of technology). We must avoid 'Learnification' where learning is always broken into small pieces.
- Gamification and ambient environments supported by AI can be an excellent approach to introduce AI in the classroom, even for younger pupils.
- Teaching AI-concepts should be intuitively managed, especially for the young ages
- Artifical intelligence (AI) can contribute to sustainable education by personalising learning environments and increase availability and accessibility to learning resources and knowledge.
- Organisational change is necessary if teachers are to use AI-systems, so that these uses can lead to effective teaching.
- There is a need to heed a warning about inscrutable AI-systems; there is importance of explainability (for recipients) and social accountability (for Machine Learning-designers) of AI-systems.
- Social adoption of technological innovation for sustainability is important.
- It is necessary to understand what data are saying; interpretation of data within context is essential and needs teams with a variety of competencies to work on them.

- Who is most interested in introducing machine learning: students, teachers, government, or industry?
- How will different countries worldwide effect the adoption of AI within their formal education sector, considering different cultures and educational systems?

- How do we understand AI: as magic, or everyday work? To what extent will we be able to reveal the 'black box'?
- Do we need to introduce pupils, students and teachers to an understanding of or to teach control of if we are to ensure that we/they use the technology rather than the technology using us?
- Should the concepts and tools of machine learning and big data analysis be applied in different school subjects, and/or should machine learning and big data analysis be the subject of computer science education in schools?
- Will AI shift the balance of power in education from teacher to algorithms?
- In terms of AI support: should we be empowering teachers versus empowering learners?

Following the webinar, word-clouds were produced to show key words that arose during the discussions. This word-cloud shows all the words extracted from all communication channels during the webinar:
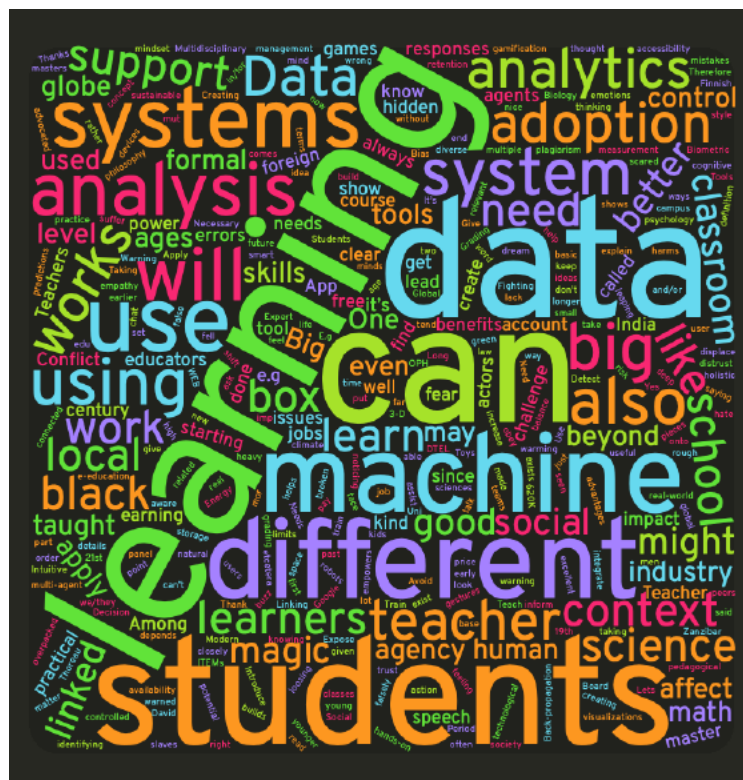
This word-cloud is based on the main discussion and contributions and enhanced with notes taken by the moderator Prof Johannes Magenheim during the discussion:
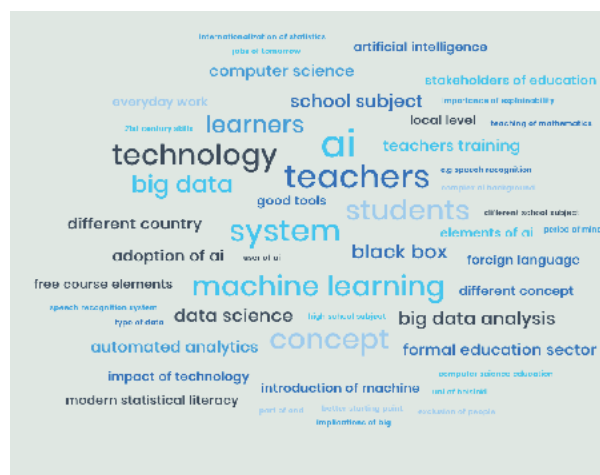
The next webinar

The next webinar focuses on "Impact of Computer Networks and Communication on the Economic and Ecological Transformations of Society - Educational Implications", and will be held on 26 April 2021, 02.00-3.30 p.m. BST.

For further details and registration please visit the Website:
https://zanzibardeclaration.cicei.org/mod/page/view.php?id=18

Please contribute to the Zanzibar Declaration

To contribute to the Zanzibar Declaration and to the discussion on the impact of ICT on education and society please enter short contributions in the ZD-grid:
https://jsilab.ch/zdApp/

Event organisers

Co-moderator: Prof Johannes Magenheim
Co-moderator: Dr Mary Webb
Technical organisation: Prof Javier Osorio
Organisational planning: Dr Christophe Reffay
Organisational support: Prof Don Passey