What Happens Next?  
The Employment Prospects of STEM Graduates  

Peter Olaf LOOMS
The question

What actions can universities take to enhance the employability of STEM graduates that have disabilities?
The topics I would like to address
The topics I would like to address

What is the current situation?
The employment prospects for persons with disabilities
The topics I would like to address

- **What is the current situation?**
  The employment prospects for persons with disabilities

- **What do we currently do?**
The topics I would like to address

- What is the current situation? The employment prospects for persons with disabilities
- What do we currently do?
- A case story: Kyle Schwaneke
The topics I would like to address

- **What is the current situation?** The employment prospects for persons with disabilities
- **What do we currently do?**
- **A case story: Kyle Schwanke**
- **What options do we have?** Actions for enhancing employment prospects in higher and further education
What is the current situation?

What do we mean by ‘disabilities’?
Disabilities

Body functions & structure
Impairment

User

Source:
Disabilities
The user experience from start to finish in HFE? Building on existing strengths?

Environment
Contextual accessibility?

Access Provisions
Task

User

Disabilities
The user experience from start to finish in HFE? Building on existing strengths?

Body functions & structure  User  Participation

Capabilities

Contextual accessibility?

Environment

Activity (actions & tasks)

Access Provisions  Task

Which disabilities? (impairments)

- Deafness
- Blindness
- Neurodiversity
- Mobility
- Impaired Hearing
- Impaired Sight
- Impaired Cognition
- Impaired Dexterity/Mobility
Which disabilities? (impairments)

Deafness
Blindness
Mobility
Prevalence of disabilities in official statistics
Prevalence of disabilities in official statistics

16-20%
Prevalence of disabilities in official statistics

16-20%
A case story: Deafness and impaired hearing

Persons who were born deaf

Persons who become deaf

https://www.youtube.com/watch?v=j6DHhM4PgVA

Sir George Martin, producer of The Beatles
Danish study of hearing loss (2012)
activity and participation restrictions

Source: Looms, Peter Olaf (2013). Chapter 10. Standardization of Audiovisual Media Accessibility
- From vision to reality in: Pradipta Biswas, Carlos Duarte, Luis Almeida, Pat Langdon and Christoph Jung (Editors)
Danish study of hearing loss (2012) activity and participation restrictions

21%  26%

Danish study of hearing loss (2012)
activity and participation restrictions

21%
26%

Source: Looms, Peter Olaf (2013). Chapter 10. Standardization of Audiovisual Media Accessibility
From vision to reality in: Pradipta Biswas, Carlos Duarte, Luis Almeida, Pat Langdon and Christoph Jung (Editors)
Hearing loss (WHO)

- Severe: 9%
- Minor: 5%
- No hearing loss: 86%

100% ≈ 7.2 billion people
Hearing loss (WHO)

- Severe
- Minor
- No hearing loss

86%
5%
9%

100% ≈ 7.2 billion people
Hearing loss (WHO)

100% ≈ 7.2 billion people
Hearing loss (WHO)

- **86%** Have hearing aid
- **5%** Have no hearing aid

100% ≈ 7.2 billion people
Hearing loss (WHO)

- 86% have hearing aid
- 9% have no hearing aid
- 5% have no hearing aid

100% ≈ 7.2 billion people

- 324 million don’t have hearing aid
- 36 million have hearing aid
Unemployment (18-65)

Working population

EU: unemployment

UN fact sheet 1: Employment of persons with disabilities  DPI/2486 November 2007
Unemployment (18-65)

Working population

EU: unemployment

UN fact sheet 1: Employment of persons with disabilities  DPI/2486 November 2007
Unemployment (18-65)
Persons with disabilities

EU: unemployment 2-3 times greater

UN fact sheet 1: Employment of persons with disabilities   DPI/2486 November 2007
Inclusion

Exclusion

The challenge

Source: http://www.benotable.com/wp-content/uploads/2015/05/Social-Medical1-e1413328260252.png
From exclusion to inclusion
The hierarchy of digital accessibility

Identify, prioritise, eliminate or mitigate barriers to inclusion

Source: LI, Dongxiao and Peter Looms (2012) based on inputs from WHO/World Bank (2011)
From exclusion to inclusion
The hierarchy of digital accessibility

Identify, prioritise, eliminate or mitigate barriers to inclusion

Source: LI, Dongxiao and Peter Looms (2012) based on inputs from WHO/World Bank (2011)
Post HFE: the current options

- **Sheltered employment**
  - persons with disabilities work in a segregated environment under supervision.

- **Supported employment**
  - persons with disabilities supported throughout the job-seeking process aiming for employment with competitive wages.

- **Customised employment**
  - person-centred approach starting with needs, aspirations, talents and skills.

Cost - Benefit

Cost of exclusion
- societal
- economic
- quality of life

- cost of digital accessibility in HFE
- cost of employment actions for PWD
Cost - Benefit

Benefits of inclusion

- societal
- employers
- persons with disabilities
- benefits of digital accessibility in HFE
- benefits of employment actions for PWD
The case of Kyle Schwaneke

Source: https://news.microsoft.com/stories/people/kyle-schwaneke.html
The case of Kyle Schwanke

Source: https://news.microsoft.com/stories/people/kyle-schwanke.html
The case of Kyle Schwanke

Source: https://news.microsoft.com/stories/people/kyle-schwanke.html
The case of Kyle Schwanke

Source: https://news.microsoft.com/stories/people/kyle-schwaneke.html
The case of Kyle Schwaneke

Source: https://news.microsoft.com/stories/people/kyle-schwaneke.html
The case of Kyle Schwaneke

Source: https://news.microsoft.com/stories/people/kyle-schwaneke.html
The case of Kyle Schwanekke

Source: https://news.microsoft.com/stories/people/kyle-schwaneke.html
The case of Kyle Schwanke

primary and secondary  tertiary  games studio  out of work  x-box
The case of Kyle Schwanke

Barriers
availability - affordability - accessibility - usability -
digital literacy - ignorance of the problems & options

primary and secondary  tertiary  games studio  out of work  x-box
The case of Kyle Schwanke

Barriers
availability - affordability - accessibility - usability - digital literacy - ignorance of the problems & options

Support actions
general awareness of human diversity as an asset, not a burden - highlight what can be done - enhance social networks
Actions for enhancing employment in higher & further education

Barriers

ignorance of the problems & options

- availability
- affordability
- accessibility
- usability
- digital literacy

primary and secondary

tertiary

employment
Actions for enhancing employment in higher & further education

Barriers

- accessibility
- affordability
- digital literacy
- ignorance of the problems & options

primary and secondary  tertiary  employment
Actions for enhancing employment in higher & further education

Barriers

ignorance of the problems & options

primary and secondary  tertiary  employment
Actions for enhancing employment in higher & further education

Barriers

ignorance of the problems & options

primary and secondary  |  tertiary  | employment

- Sheltered employment
- Supported employment
- Customised employment

ILO's twin tracks
- Break down barriers
- Inclusion in mainstream society
Actions for enhancing employment in higher & further education

Barriers

ignorance of the problems & options

primary and secondary

tertiary

employment
Actions for enhancing employment in higher & further education

**Barriers**

ignorance of the problems & options

- availability - affordability - accessibility - usability - digital literacy - ignorance of the problems & options

**Support actions**

general awareness of human diversity as an asset & not a burden
- student counseling
- sustainable funding options
- digital accessibility for teaching/learning using standards (eg. W3C)
- test solutions
- university research (evidence for accessibility policy & strategy)
- awareness-building of university & HR staff
Employment requires digital accessibility - and more...
Identify, prioritise and tackle the weakest links in the user experience at educational institutions
Resources (general)


Resources (media accessibility)


Looms, Peter Olaf. Making Television Accessible. November 2011. International Telecommunication Union/G3ict, Geneva. Published as UCZYNIĆ TELEWIZJĘ DOSTĘPNĄ by the President of Poland in April, 2012 and in an abridged version by The Centre for Internet and Society, India in December, 2012. The report is currently available in French, Spanish, Arabic, Chinese and Russian, in addition to English (original version) and Polish. Please download the relevant version: http://g3ict.org/resource_center/publications_and_reports/p/productCategory_whitepapers/subCat_0/id_192


Contact particulars:

Peter Olaf Looms
Ellesvinget 25
DK-2950 Vedbæk
Denmark
E: polooms@gmail.com
M: +45 51 56 75 46
Skype: pol-denmark
Wechat: peterolaflooms
Thank you!

Contact particulars:

Peter Olaf Looms
Ellesvinget 25
DK-2950 Vedbæk
Denmark
E: polooms@gmail.com
M: +45 51 56 75 46
Skype: pol-denmark
Wechat: peterolaflooms