Widening disabled learners’ participation to HE through the use of MOOCs

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Widening disabled learners’ participation to HE through the use of MOOCs

Francisco Iniesto, Patrick McAndrew, Shailey Minocha and Tim Coughlan
The Open University

5th OU – Widening Participation Conference – 26/27 April 2018
Is widening participation to higher education enough?
Milton Keynes
FOR IMMEDIATE RELEASE

Thursday, April 2, 2015

United States Reaches Settlement with Provider of Massive Open Online Courses to Make its Content Accessible to the Disabled

Berkeley Will Delete Online Content

Starting March 15, the university will begin removing more than 20,000 video and audio lectures from public view as a result of a Justice Department accessibility order.
INTRODUCTION AND RELATED WORK

• MOOC Learning, benefits such as:
  • Openness
  • Low cost
  • Ubiquity (Time, place and pace)
  • Acquiring knowledge
  • Social learning: Connectivism
  • Achieving new competences
  • Develop professionally
<table>
<thead>
<tr>
<th>Study A: The perspectives of providers</th>
<th>Study B: The perspectives of learners</th>
<th>Study C: MOOC accessibility audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 Interviews with MOOC providers and those with a range of expertise in the MOOC community</td>
<td>15 interviews with disabled learners Pre and post MOOC survey data from 14 Open University MOOCs at FutureLearn</td>
<td>1. Accessibility heuristic evaluation 2. UX walkthroughs and design in learning 3. Quality of the design 4. Universal design for Learning (UDL) Being tested on FutureLearn, edX, Coursera and Canvas.</td>
</tr>
</tbody>
</table>
# ONLINE SURVEYS

- Analyse pre and post course survey data from 14 Open University MOOCs at FutureLearn (2013-2015)

<table>
<thead>
<tr>
<th>Name of course</th>
<th>Pre-Course Survey</th>
<th>Post-Course Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Disabled Learners (Total)</td>
<td></td>
</tr>
<tr>
<td>Basic Science Understanding Experiments</td>
<td>13.3% (804)</td>
<td>20.9% (163)</td>
</tr>
<tr>
<td>Elements of Renewable Energy</td>
<td>11.6% (974)</td>
<td>11.3% (150)</td>
</tr>
<tr>
<td>Get Started with online learning</td>
<td><strong>15.2% (1668)</strong></td>
<td>15.7% (280)</td>
</tr>
<tr>
<td>Introduction to Cyber Security</td>
<td>9.4% (6065)</td>
<td>9.9% (1049)</td>
</tr>
<tr>
<td>Introduction to Ecosystems</td>
<td>13.1% (734)</td>
<td>12.1% (240)</td>
</tr>
<tr>
<td>Learn to code for data analysis</td>
<td>8.8% (3454)</td>
<td>7.6% (158)</td>
</tr>
<tr>
<td>Managing My Money</td>
<td>13.1% (1401)</td>
<td>12.4% (394)</td>
</tr>
<tr>
<td>Moons</td>
<td>11.8% (1251)</td>
<td>12.2% (935)</td>
</tr>
<tr>
<td>Smart Cities</td>
<td>5% (1020)</td>
<td>2.9% (137)</td>
</tr>
<tr>
<td>Start Writing Fiction</td>
<td><strong>14.2% (5215)</strong></td>
<td>16.0% (714)</td>
</tr>
<tr>
<td>The Business of Film</td>
<td>8.3% (977)</td>
<td>9.6% (240)</td>
</tr>
<tr>
<td>The Lottery of Birth</td>
<td>13.5% (1426)</td>
<td>7.3% (96)</td>
</tr>
<tr>
<td>The Science of Nutrition</td>
<td>10.5% (2813)</td>
<td>12.0% (702)</td>
</tr>
<tr>
<td>Understanding Musical Scores</td>
<td>12.8% (1631)</td>
<td>14.0% (371)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29433</strong></td>
<td><strong>5629</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Course survey</strong></td>
</tr>
<tr>
<td><strong>Post Course survey</strong></td>
</tr>
</tbody>
</table>

## Percentage of cases

- Other disabilities: 7%
- Autistic spectrum disorder: 6%
- Unseen disabilities: 26%
- Fatigue or pain: 31%
- Personal care support: 4%
- Mental health difficulties: 23%
- Dyslexia or other specific learning difficulties: 18%
- Impaired speech: 3%
- Restricted manual skills: 10%
- Restricted mobility: 30%
- Deaf or hard of hearing: 13%
- Blind or partially sighted: 5%
**DEMOGRAPHICS**

- **Gender**
  - Female: 58.9% Disabled, 52.3% Non-Disabled, 53.0% Total
  - Male: 41.1% Disabled, 47.7% Non-Disabled, 47.0% Total

- **Age Groups**
  - 19-25 years: 8.8% Disabled, 11.4% Non-Disabled, 11.1% Total
  - 26-35 years: 14.7% Disabled, 21.3% Non-Disabled, 20.5% Total
  - 36-45 years: 15.8% Disabled, 16.5% Non-Disabled, 16.2% Total
  - 56-65 years: 15.8% Disabled, 16.5% Non-Disabled, 16.2% Total
  - Over 65 years: 13.9% Disabled, 10.2% Non-Disabled, 10.6% Total

- **Language**
  - English: 73.5% Disabled, 56.8% Non-Disabled, 58.7% Total
  - Non-English: 26.5% Disabled, 43.2% Non-Disabled, 41.3% Total

- **Census**
  - Doctorate: 2.6% Disabled, 4.6% Non-Disabled, 4.4% Total
  - Postgraduate: 22.4% Disabled, 32.1% Non-Disabled, 31.0% Total
  - Undergraduate: 88.9% Disabled, 31.6% Non-Disabled, 31.0% Total
  - College diploma: 51.6% Disabled, 49.0% Non-Disabled, 49.0% Total
  - School-leaving qualification: 28.1% Disabled, 14.0% Non-Disabled, 14.0% Total
  - No formal qualification: 15.9% Disabled, 16.6% Non-Disabled, 15.9% Total

- **Employment Status**
  - Full-time employed: 71.0% Disabled, 73.0% Non-Disabled, 73.0% Total
  - Part-time employed: 29.0% Disabled, 27.0% Non-Disabled, 27.0% Total
  - Full-time student: 6.0% Disabled, 7.4% Non-Disabled, 7.3% Total
  - Unwaged and seeking employment: 11.1% Disabled, 14.0% Non-Disabled, 14.0% Total
  - Retired: 15.9% Disabled, 16.6% Non-Disabled, 15.9% Total

---

*Note: The image contains bar charts and pie charts representing the demographic data.*
Why are you interested in studying this course?

- To learn more flexibly around my other commitments:
  - Total: 25.1%
  - Disabled: 21.6%
  - Non-Disabled: 22.0%

- To try out learning online:
  - Total: 26.0%
  - Disabled: 21.7%
  - Non-Disabled: 22.1%

- The course was free:
  - Total: 45.9%
  - Disabled: 37.5%
  - Non-Disabled: 38.4%

- To prepare me for future study:
  - Total: 20.8%
  - Disabled: 16.6%
  - Non-Disabled: 17.1%

- Personal interest:
  - Total: 88.2%
  - Disabled: 84.0%
  - Non-Disabled: 85.2%

- Relevant to my work:
  - Total: 19.2%
  - Disabled: 27.8%
  - Non-Disabled: 26.8%

- Professional development:
  - Total: 29.9%
  - Disabled: 40.2%
  - Non-Disabled: 39.1%

- To improve my English:
  - Total: 6.9%
  - Disabled: 11.2%
  - Non-Disabled: 10.7%

What sort of online course have you taken?

- An online course based around OER:
  - Total: 23.9%
  - Disabled: 17.7%
  - Non-Disabled: 18.4%

- An online course for university credit:
  - Total: 30.4%
  - Disabled: 22.4%
  - Non-Disabled: 23.3%

- An online course for continuing professional development:
  - Total: 29.6%
  - Disabled: 29.6%
  - Non-Disabled: 34.0%
  - Total: 33.5%
<table>
<thead>
<tr>
<th>Category</th>
<th>Fall below expectations</th>
<th>Exceeded expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>My overall expectations of the course</td>
<td>39.9%</td>
<td>71.2%</td>
</tr>
<tr>
<td>Improving my career prospects</td>
<td>22.2%</td>
<td>47.2%</td>
</tr>
<tr>
<td>Learning more flexibly around my other</td>
<td>21.2%</td>
<td>44.1%</td>
</tr>
<tr>
<td>Preparing for further studies</td>
<td>18.5%</td>
<td>34.6%</td>
</tr>
<tr>
<td>Learning new things</td>
<td>35.8%</td>
<td>75.5%</td>
</tr>
<tr>
<td>Adding a fresh perspective to my current</td>
<td>16.2%</td>
<td>28.8%</td>
</tr>
<tr>
<td>Supplementing my existing studies</td>
<td>19.3%</td>
<td>37.1%</td>
</tr>
</tbody>
</table>
As a result of using this Open University course, are you more or less likely to do the following?

<table>
<thead>
<tr>
<th>Action</th>
<th>More likely</th>
<th>Less likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study more free Open University materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>64.0%</td>
<td>16.1%</td>
</tr>
<tr>
<td>Non-Disabled</td>
<td>63.4%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Total</td>
<td>63.7%</td>
<td>15.9%</td>
</tr>
<tr>
<td>Visit related museums, exhibitions, galleries, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>45.9%</td>
<td>16.0%</td>
</tr>
<tr>
<td>Non-Disabled</td>
<td>45.8%</td>
<td>16.0%</td>
</tr>
<tr>
<td>Total</td>
<td>45.8%</td>
<td>15.9%</td>
</tr>
<tr>
<td>Look at other related materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>57.2%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Non-Disabled</td>
<td>57.4%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Total</td>
<td>57.3%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Take part in other online activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>34.7%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Non-Disabled</td>
<td>34.9%</td>
<td>25.6%</td>
</tr>
<tr>
<td>Total</td>
<td>34.8%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Research this subject further</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>58.2%</td>
<td>38.3%</td>
</tr>
<tr>
<td>Non-Disabled</td>
<td>58.1%</td>
<td>38.3%</td>
</tr>
<tr>
<td>Total</td>
<td>58.2%</td>
<td>38.3%</td>
</tr>
<tr>
<td>Take a paid-for course in this subject area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>37.9%</td>
<td>42.0%</td>
</tr>
<tr>
<td>Non-Disabled</td>
<td>38.4%</td>
<td>40.6%</td>
</tr>
<tr>
<td>Total</td>
<td>38.2%</td>
<td>41.2%</td>
</tr>
<tr>
<td>Take another free course in this subject area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled</td>
<td>67.2%</td>
<td>42.0%</td>
</tr>
<tr>
<td>Non-Disabled</td>
<td>67.0%</td>
<td>41.3%</td>
</tr>
<tr>
<td>Total</td>
<td>67.1%</td>
<td>41.7%</td>
</tr>
</tbody>
</table>
INTERVIEWS WITH LEARNERS

- Pre and post course survey data from 8 Open University MOOCs at FutureLearn (2015)
- Total learners interviewed 15

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**Profile**

**Pre-questionnaire**

**Interview**

---

<table>
<thead>
<tr>
<th>ID</th>
<th>Disabilities</th>
<th>MOOC</th>
<th>Contacted</th>
<th>Remind</th>
<th>Agreed</th>
<th>Declined</th>
<th>Date of the pre-questionnaire</th>
<th>Date of the interview</th>
<th>Taken by</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL5</td>
<td>BPS, LD, MHD, UD</td>
<td>The Science of Nutrition</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Detected as SPAM</td>
<td>25/05/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL1</td>
<td>BPS, RM, RMS, FP, UD</td>
<td>Elements of Renewable Energy</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>14/05/2017</td>
<td>05/05/2017 survey</td>
<td></td>
</tr>
<tr>
<td>FL3</td>
<td>RM</td>
<td>Get Started with online learning</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>14/05/2017</td>
<td>18/05/2017 skype</td>
<td></td>
</tr>
<tr>
<td>FL4</td>
<td>MHD</td>
<td>The Science of Nutrition</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL2</td>
<td>RM, RMH, FP, UD</td>
<td>Understanding Musical Scores</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>25/05/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL10</td>
<td>RM, RMS, UD</td>
<td>Understanding Musical Scores</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>25/05/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL6</td>
<td>DHH</td>
<td>Get Started with online learning</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL7</td>
<td>BPS, DHH,</td>
<td>The Science of Nutrition</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL9</td>
<td>MH, FP</td>
<td>The Science of Nutrition</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MH</td>
<td>Understanding Musical Scores</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Disabilities:
- Blind or partially sighted (BPS)
- Deaf or hard of hearing (DHH)
- Restricted mobility (RM)
- Restricted manual skills (RMS)
- Dyslexia or other specific learning difficulties (LD)
- Personal Care Support (PCS)
- Mental health difficulties (MHD)
- Fatigue or pain (FP)
- Unseen disabilities (UD)
INTERVIEWS WITH LEARNERS

### Age Distribution
- 65+ (20.00%)
- 56-65 (46.60%)
- 46-55 (20.00%)
- 36-45 (20.00%)
- 26-35 (6.60%)

### Disability
- Unseen disabilities (22.50%)
- Fatigue or pain (16.10%)
- Mental health difficulties (9.70%)
- Personal Care Support (9.70%)
- Learning difficulties (9.70%)
- Restricted manual skills (12.90%)
- Restricted mobility (9.70%)
- Hard of hearing (9.70%)
- Partially sighted (6.50%)

### Educational Qualification
- School-leaving qualification (26.60%)
- Bachelors university degree (6.60%)
- No formal qualification (6.60%)
- Postgraduate (13.30%)
- College diploma or certificate (13.30%)
- Undergraduate (13.30%)
- Graduate school university degree (13.30%)

### Employment Status
- Full-time employed (33.30%)
- Disabled and not able to work (26.60%)
- Retired (6.60%)
- Unwaged and seeking employment (6.60%)
- Unwaged with domestic responsibilities (6.60%)
- Full-time carer for severely disabled families (6.60%)
• Thematic analysis: inductive approach for coding the interviews has been followed using transcripts of the interviews.

• The transcripts were read and annotated using the 6-phase methodology by Braun and Clarke (2006)

• 5 themes with 23 codes

• Code “Certification, Professional development and access to HE” to understand: “Widening disabled learners’ participation to HE through the use of MOOCs”
RELEVANT QUOTES

“I did learn some things yeah because obviously, I did it before I started properly on my law course, so I learned quite a lot “

Disabled learners who are already participating in HE are using MOOCs to supplement their degree studies

”I think maybe FutureLearn should do well any of them they are going to do something about getting started with online learning “

A way to get started with online learning

” I found it very useful, and I know there's a lot of mature students with the Open University and a lot of the mature students who are good with technology / I think it should be like a little bit of compulsory unit or something before starting”

To gain preliminary knowledge on an HE topic before starting the formal university course
LIMITATIONS AND CONCLUSIONS

Limitations:
• A simple disability marker may not reflect diversity within the population.
• It should not be assumed that these results generalise to the whole of the disabled learner population.
• Including categories of disability will provide greater insight into differences within the population of disabled learners.
• Extensions to the analysis approach to include clustering of responses, and identification of correlations.

Conclusions:
• Disabled learners are particularly interested in taking up MOOCs, for personal interest, to determine if they can study at a higher educational level and to get flexibility and free education. They are less interested in the relevance of the MOOC to their work, or professional development.
• Disabled learners have previous experience in online courses that allows them to get university credit, which is related to their interest in studying at a higher educational level. They have less experience of participating in online courses for continuing professional development.
Discussion and questions

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