



Exploring the use of automated captioning and its impact on disabled students in higher education

Published by Advance HE on behalf of the Disabled
Students' Commission.

Contents

Introduction	3
Project background	3
Literature and context	4
Summary of findings	6
How is automated captioning currently perceived?	6
Student voices and experiences	7
Staff voices and experiences	8
Technological capabilities and limitations	9
Institutional approaches and emerging good practice	10
Conclusion and next steps	11
DSC recommendations	11
References	13

Introduction

Project background

The Disabled Students' Commission (DSC) is an independent and strategic group, established by the Universities Minister to advise, inform and influence higher education providers (HEPs) to improve support for disabled students. Part of the Commission's role is to identify and promote approaches which work well for disabled students.

On 6 December 2021, the DSC held a roundtable to explore the issues surrounding the use of automated captioning in teaching and learning in higher education (HE), and its impact on both disabled students and staff. The roundtable received contributions from academic and support staff, disability practitioners and experts working in the area of disability support, sector specialists as well as representatives from lecture capture and captioning software providers. Disabled students were also invited to share their views. The roundtable explored the following topic areas:

- + an introduction to the legislative context and the audits carried out on HEPs regarding digital accessibility (including automated captioning)
- + issues arising from the use of automated captioning which are impacting on the educational experience of disabled students
- + solutions or improvements to help achieve a better and more consistent educational experience for disabled students when using automated captioning
- + suggestions for HEPs which minimise additional workload for staff at the editing stage.

To expand on the regulatory context, using automated captioning does not meet requirements of Public Sector Bodies Accessibility Regulations (PSBAR) and the regulations state that pre-recorded video is only compliant if captions have been checked and corrected. Automated captions can be part of this process, if they can be edited, but alone do not meet the standard of [Web Content Accessibility Guidelines 2.1 AA](#). Live video is also exempt from PSBAR. Clarification on the regulatory expectations of PSBAR for captioning is outlined in [Video captioning and accessibility regulations](#) (Kelly and Mote, 2021).

Despite challenges, automated captioning has been used widely during Covid-19 and, if used correctly, presents a way to make learning more accessible to a range of disabled students. This includes (but not limited to) students who are d/Deaf or hearing impaired, students with a mental health condition and students with a social and/or communication impairment such as autism. [Guidance for captioning rich media](#) (McNaught and Wilkinson, 2021) outlines good practice and approaches for HEPs to support disabled learners in light of the wide, distributed production of automated captions across many hundreds or even

thousands of module leads. It also highlights prevalent issues around standards setting, expectations, monitoring and support.

Similar issues were raised within research conducted by the DSC investigating the impact of Covid-19 on disabled students' experiences (DSC, 2022). Students discussed concerns relating to poor quality of transcripts, a lack of consistency between modules, delays to checking and receiving transcripts, as well as an incorrect perception from some HEPs that transcripts were 'notes'. The aforementioned challenges all resulted in disabled students being placed at an unfair disadvantage in comparison to their non-disabled peers when using automated captioning as a learning tool.

The DSC acknowledges that while a rapid shift to online/blended learning during Covid-19 has created at times a problematic (and demanding) transition to the increased use of automated captioning software, technology will continue to improve. However while the sector awaits positive technological change, an interim solution must be found to address some of the key issues facing disabled students.

Literature and context

Much of the roundtable discussions were supported by publications that explored the current role and perception of automated captioning in UK HE. Outside of HE, [a recent study](#) conducted by Stagertext, a captioning charity (BBC, 2021) also shone a light on the reliance of subtitling in public life, with four out of five viewers aged 18-25 using subtitles all of part of the time when watching television.

A publication produced by the National Association of Disability Practitioners [highlighting student concerns and institutional challenges during the pandemic](#) (NADP, 2020) also touched on issues related to automated captioning. It stated that those using automated captioning reported "variable success which seemed to depend on bandwidth; microphone quality; the acoustics of the room the lecturer/students are using; and accents". A case study from a d/Deaf student who used lipreading and speech as their main form of communication also reported "frustrations with lack of captions", as well as "finding it difficult as any social webinars do not have captions", outside of a pedagogical environment.

As mentioned previously, McNaught and Wilkinson (2021) provided a summary of achievable good practice with current technologies, resources and workflows available. The publication acknowledged the unintended consequences with providing automated captioning, such as a possible roll back on lecture capture if issues around staff workload were not resolved. It explored the minimum practice possible (ie encouraging the use of video with automated speech recognition as an additional format to existing content) as well as possible ways to move beyond the minimum standard. This included improving accuracy of automatic captions by investing in better workflows, hardware, software, human checking, training or tertiary services.

A paper produced by Johnston and Griffith (LSBU, 2021) discussed a further unintended consequence of automated captioning, which included the various equalities impacts on staff in relation to caption-editing. The paper stimulated further investigation of the uneven impacts of using automatic speech recognition as the default starting point for human edited captions, and supported a new conversation about targeted support for certain academics. Based on the collection of evidence from a small sample of self-selected colleagues, there were prevalent concerns around higher burden for some academics with protected characteristics, such as colleagues who had a speech difference or accent.

Finally, the [OPERA](#) (Opportunity, Productivity, Engagement, Reducing barriers, Achievement) team at the University of Kent created a survey (2021) to be distributed to staff across range of HEPs to identify potential opportunities for the enhancement of captioning and caption editing on digital media in the education sector. The survey was distributed in partnership with the Higher Education Institutions Captioning Interest Group. Frequent barriers to enhancement reported in the survey included a lack of recognition of specialist terminology, issues with accent recognition, and issues with the video and caption editing interface.

Summary of findings

This booklet provides an overview of the current challenges raised during the roundtable, and looks forward to how automated captioning could possibly become an informal, embedded component of inclusive learning and teaching provision, while mitigating the potential negative equalities impacts among staff.

How is automated captioning currently perceived?

- + Overall, it was felt that there is currently a lack of a central solution or institutional response to support the consistent provision of automated captioning, with the responsibility for its implementation often lying with individual departments. At present, automated captioning is perceived as an “interim solution” rather than a long-term strategy.
- + Inconsistency was also attributed to Covid-19 and the rapid shift to using online platforms without much opportunity for training or to ensure accessibility was embedded from the outset.
- + There were instances where automated captioning was perceived as the “default position” and thus a substitute for communication support such as British Sign Language (BSL) interpreters. Some disabled students reported being offered the choice of either automated captioning or a note-taker by their HEP.
- + In relation to the above, there was a debate around to what extent disabled students (including students who were d/Deaf or hearing impaired) should rely on automated captioning. If they were to be reliant, then communication support should also be provided and automated captioning should only ever be an augmentative tool.
- + In instances where automated captions were refused entirely, departments cited ethical and pedagogical concerns such as student consent, student engagement, and intellectual property and performance rights. They also felt concerned about discussion of sensitive topics.
- + Staff felt strongly that automated captioning should form part of the sector’s broader understanding of inclusion and how the provision fits into an inclusive curriculum. A thoughtful pedagogical approach is required, whereby the disproportionate impact of inaccurate captions on disabled students is properly understood and mitigated.

Student voices and experiences

Quality and delivery of captions

- + The vast majority of students felt that the quality of automated captioning was poor (sometimes illegible), meaning that those who currently relied heavily or exclusively on captioning were unable to engage with course content properly.

“It felt like trying to decode a puzzle rather than actually understand the content I was engaging with.”

- + Students across the board experienced delays once captions arrived at the editing stage, in some cases they did not receive a transcript until two or three weeks later. This also added to the existing administrative burden on behalf of disabled students to fight for reasonable adjustments.

“Having the captions is all very well and good, but there is such a delay between, say, a lecture being published and when an accurate caption file is uploaded, it has such a disproportionately high burden on disabled students and puts you so far behind in your course.”

Inconsistent provision across modules, between departments and HEPs

- + Disabled students reported experiencing inconsistencies depending on the module or subject studied. While captioning was possible in some departments, in others the request was refused. For example, a student on a Language course was told automated captioning would not be possible as it would create an unfair advantage during listening exercises and assessments.

“One of the main issues I'm getting at the moment is in language courses, so French, Italian etc. Universities, or at least my university, is saying if you require captions, you're not allowed to take the course because in listening exams, apparently it is an unfair advantage. Nobody told me until I got to my listening exam. Obviously, I then failed that because I can't understand anything.”

- + A number of students found that while there was automated captioning in place in seminars and lectures, this was often not extended to one-to-one sessions delivered online.
- + Pockets of good practice were found between HEPs but students felt that there is currently a lack of consistency. For example, one HEP provided automated captioning for activities external to teaching and learning, such as fire safety inductions and social events. This was not the case for others.

Student experiences in relation to Disabled Students' Allowance

- + Despite automated captioning benefiting an array of students across a range of impairment types, those who were not eligible for Disabled Students' Allowance (DSA) sometimes found that their request for automated captioning was refused. Students who were not d/Deaf or hearing impaired (ie students with processing issues and/or a mental health condition) also felt ignored and excluded from the bigger picture.
- + It can take months, if not years, to get support in place through DSA. One student recalled waiting 18 months for a Palantypist, and the poor quality and inconsistent application of automated captioning meant that this did not serve as an adequate interim solution.
- + Another student recalled that if their BSL interpreter was unavailable on the day, no replacement was made and they were left "high and dry".

Staff voices and experiences

Staff workload and wellbeing

- + Inaccurate transcripts had a direct impact on the number of contact hours required between staff and student, where in some cases staff had to substantially increase their hours in order to go over missing information for the student.
- + Equality and diversity was a factor, as staff with an accent or speech impairment were disproportionately impacted; in these cases inaccuracies were more common and the time needed to rectify them was much greater.
- + Staff present at the roundtable also mentioned that, as workload has inevitably increased during Covid-19, to edit transcripts on top of this sometimes felt "unmanageable". While some found innovative ways to reduce the amount of time spent editing, the impact was still significant.

"Ultimately, you need the same amount of time as the amount of lectures you have in order to make sure that every lecture is properly captioned. No-one has that resource."

- + With the above in mind, staff across the board called for a central Government approach to help colleges, universities and other public sector bodies provide resource to address this issue. They felt concerned that unless more was done to encourage HEPs to develop robust workflows to support staff during the editing stage, then staff would increasingly roll-back the provision of automated captions.

Technological capabilities and limitations

Accuracies and inaccuracies

- + Staff noted that automated captioning required staff to communicate in a way that would be recognised by the platform. Anything that strayed from this, for example an international member of staff with an accent or a member of staff with a speech impediment, meant that many more inaccuracies were found.
- + Accuracy also relied on the quality of the audio. This was felt to be a difficult balance, especially since campuses have reopened and many staff members have been juggling a blend of face-to-face and online teaching. Often campus factors such as background noise, room acoustics and a pedagogical need for lecturers to move around a room impacted on the ability to capture effective audio.

Technical language and terminology

- + It was reported that captioning software was often unable to capture specialist terminology (especially for subjects with technical language such as Medicine).

“We haven’t yet found an automated system that will give us the accuracy we need with the discipline specific language.”

- + There was a need to ‘train’ the captioning software, inputting specialist terminology from the beginning which requires additional time and resource.

Editing and ownership of transcript

- + The editing process is usually only possible if you are the ‘owner’ of the file, restricting other members of staff from assisting. Staff noted that if you wish to edit outside of the platform, then you would need to export the captions, convert the file and re-upload. The editing interface was often clunky and difficult to navigate.

Institutional approaches and emerging good practice

- + A number of HEPs present at the roundtable reported working in co-creation with their students in order to crowdsource the resource needed to edit and correct transcripts. In some cases, a pilot of this type of activity has received a small amount of funding and monitoring is ongoing.
- + Another HEP attempted to shift the perception of automated captioning by viewing it as an 'informal' offering available to all students as opposed to the 'formal' provision of reasonable adjustments. This has helped to differentiate between the two, rather than seeing one as a substitute for the other.
- + Longer-term, HEPs are seeking funding approval or resource to train staff and raise awareness of automated captioning, procure or build more accessible platforms, develop transcript templates, as well as increased opportunities for co-creation and editing between staff and students.

Conclusion and next steps

At present, there is no optimal solution for addressing the challenges created by the use of automated captioning. Despite benefiting a wide array of disabled students, across a range of impairment types, the challenges are widespread and in some cases causing disabled students to fall behind. The issue of inaccurate transcripts is compounded by the fact that academic staff do not have the adequate resource to edit and correct errors, and this is disproportionately impacting staff with certain protected characteristics.

While improvements to technology continue to happen at speed, the rapid shift to online learning and teaching during Covid-19 means there are still significant issues in relation to automated captioning that have been left unaddressed. The DSC has therefore developed a set of recommendations for the sector to consider, in the hope that in future, automated captioning can form an integral part of an inclusive pedagogical approach whereby the impact on disabled students has been properly understood and mitigated.

DSC recommendations

- + Automated captioning, although not entirely accurate, must work in tandem with other forms of communication support such as a note-taker, Palantypist or BSL interpreter to enhance meaning, particularly for d/Deaf and hearing impaired students. While it is possible to view automated captioning as an informal offering for all students, it should not be regarded as a meaningful substitute where communication support is required.
- + While technological improvements are ongoing, the limitations (such as inaccuracy) must be clearly communicated to disabled students using automated captioning for the first time, so that they have agency to make an informed choice as to whether informal provision will be sufficient for them to engage with learning materials on their course.
- + HEPs must also recognise the lengthy process of getting DSA support in place, as well as understand that not all students who identify as disabled are eligible for funded support. Automated captions cannot be provided as an interim solution for these students.
- + Increased access to resource is required to edit transcripts, ensuring equalities impacts on staff with protected characteristics are mitigated and to preserve the wellbeing of academic staff. Reasonable adjustments available to disabled academic staff via Access to Work must also be well communicated.
- + HEPs should explore solutions to reducing the delay to editing transcripts that at the same time will alleviate staff workload, and take into account equality and diversity factors and disproportionate burden.

- + Increased opportunities to train staff on the use of digital platforms specifically in relation to improved online communication, such as the use of pinning, spotlighting and providing terminology glossaries would be beneficial.
- + Higher education should capitalise on scaling up existing pockets of good practice developed during Covid-19, and focus on sharing guidelines co-created with students around how barriers can be overcome.

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