

### Purpose

ReadSpeaker is a software tool that uses the text-to-speech technology to speech-enable web sites and mobile sites facilitating their accessibility. It provides an integrated text-to-speech solution to Canvas e-learning environment. In this evaluation, ReadSpeaker was configured in the Canvas test environment. The outcome of the evaluation is to help the university decide ReadSpeaker as an assistive technology whether it adds value to support students and staff using Canvas e-learning system.

The aims of the ReadSpeaker evaluation include:

- 1) Test the text-to-speech function and further evaluate its functions as an assistive technology for people with dyslexia and other reading difficulties including visual impairment;
- 2) Speech-enable website and mobile sites, providing an easier and more convenient way for the users to review course content on smaller screen at anywhere and anytime.

The evaluation was carried out in three stages: the first stage was to set up the ReadSpeaker sandbox account and initial testing within IT Innovation team; the second stage was the user survey from a selection of Canvas users; the final stage was to make further recommendations based on the testing results and the users' feedback.

### Product Overview

#### What is ReadSpeaker?

ReadSpeaker is a suite of web-based applications that uses the text-to-speech technology to speech-enable web sites, mobile sites, RSS feeds, mobile apps like iPhone, Android or Blackberry apps, as well as online documents and forms. ReadSpeaker and Instructure are partners in integrating text to speech on the Canvas learning management system.

#### Features:

1. ReadSpeaker is a "Software as a Service" SaaS solution and the application itself is hosted by ReadSpeaker. This means that users can have access to the read-aloud functionality from any computer anywhere in the world.
2. It supports multiple language and multiple voices per language.
3. It provides customisable features such as: reading area, order, speed and highlighting colour.

The following add on products could be configured at extra costs:

4. ReadSpeaker docReader lets users listen to PDFs, Word documents, Excel, PowerPoint, Open Office documents, ePub format document and Rich Text Format.
5. ReadSpeaker form Reader provides users with vocal assistance when filling out online forms.
6. ReadSpeaker speechCloud API can add speech to mobile apps, making the content available to the learners in a convenient, easy-to-listen way.

#### License:

ReadSpeaker licensing is based on Full Time Equivalent (FTE)'s, which is a headcount-based subscription model. This model allows for use of ReadSpeaker on the Canvas e-learning system as well as on the public websites of the University. For the university, the FTE model means that it will calculate the license fee based on how many users are set up in Canvas during a certain period of time, for instance 12 months.

## Evaluation

In this evaluation, we set out the experiment in the Canvas test environment (<https://birmingham.test.instructure.com>). Testing was led by the IT Innovation Centre with assistance from the e-learning team in CLAD. Both desktop environment and mobile devices (iPad, iPhone and Samsung Note 3) were used in the evaluation.

There are certain restrictions in the experiment:

1. ReadSpeaker sandbox account was set up from 14<sup>th</sup> July 2014 for a 4-weeks period; it was then extended every 4 weeks for a couple of times until 2<sup>nd</sup> Oct 2014.
2. No customisation was enabled in the ReadSpeaker sandbox account.
3. ReadSpeaker recommended ReadSpeaker Enterprise Highlighting 2.5 for Canvas for the university to test.

During the testing, a couple of issues raised in the desktop environment and mobile devices:

### Use on desktop environments:

1. ReadSpeaker reads content where the CSS display property is set to none. It doesn't read the navigation bar or the top menu.

**Reply from ReadSpeaker:** By default ReadSpeaker reads out **all** the content that can be located in the element that is selected out by ReadSpeaker. This includes reading hidden content, since hidden content is often used to describe objects on a page or to enter custom text that, while it should not be displayed, it should be read. It is possible for us (the developers) to set up reading-rules that silence elements that have "display: none" set on them (only if it's set inline however, we cannot determine if that CSS property is set elsewhere).

**Action Suggested from ITIC:** there is not much can be done, as most of the content in Canvas does not use inline CSS.

2. ReadSpeaker interferes with Canvas in the edit mode:
  - a. When clicking the "listen" button, the content in the editor will instantly disappear, although ReadSpeaker still reads the content out.
  - b. All of the buttons in the side menus used to edit the content stop responding.
  - c. Stop the "listen" button, the page content still doesn't display, need to reload the page.

**Reply from ReadSpeaker:** The tool is intended to be used by students and not by editors, so while it is technically possible to use ReadSpeaker when in editing mode, it is not how it was intended to be used by the end-users. The problem stems mostly from the fact that we (the developers) have to perform markup on content in order to create highlighting, which means altering the HTML of the page. In editing mode the HTML of a page can be altered from multiple sources and thus it creates a scenario in which our tool will desync. While possible to use ReadSpeaker here (text-selection is definitely preferred), it was intended to be used by the end-users and not the editors themselves.

**Action Suggested from ITIC:** Disable ReadSpeaker in the Edit mode, so ReadSpeaker is set to play only when users are viewing Course or Group pages.

3. The option to toggle ReadSpeaker on and off should be incorporated in the user settings, rather than appearing on every screen. This would allow us to restrict its use to specific individuals and save the license cost.

**Reply from ReadSpeaker:** Canvas only allows us to enter a global JavaScript into the pages. So we cannot enter any data into the actual Canvas system to allow for this kind of configuration.

**Action Suggested from ITIC:** E-learning team will need to discuss with Canvas whether it is possible to provide further customisation for individual users.

### Use on Mobile devices:

1. ReadSpeaker does not work with the Canvas mobile apps (iOS and Android Devices). At the current stage, it only works on the mobile browser but not the mobile apps.
2. On a mobile device, it is difficult to select text and play the selected text.

**Reply from ReadSpeaker:** This is something we are working on improving for the future.

**Action Suggested from ITIC:** Wait for the new version release.

3. On mobile phone screens, the ReadSpeaker icon is so small that it is very difficult to click on. When the screen is zooming out, the ReadSpeaker icon disappears from the screen.

**Reply from ReadSpeaker:** Feedback will be forwarded to the developers.

**Action Suggested from ITIC:** Wait for the new version release.

## User Survey

A five questions ReadSpeaker user survey was set up in Canvas. The survey was mainly focused on ReadSpeaker's usability, reliability and how helpful it was to the users. The five questions are listed as below:

1. How easy was it to use ReadSpeaker?
2. How useful is the ReadSpeaker's text-to-speech function for your work or study?
3. Why would ReadSpeaker be, or not be, useful for your work or study?
4. How reliable and stable is ReadSpeaker when used in Canvas?
5. What reliability or stability issues did you encounter while using ReadSpeaker with Canvas?

All e-learning support specialists (20 people) were invited for trying out ReadSpeaker and to do the survey. At the end of the survey, 10% invited users participated the survey and provided their feedback as below:

1. 10% Users strongly agree or agree that ReadSpeaker is easy to use;
2. 10% Users agree that Text-to-speech function would be useful for work or study: it is useful for multitasking, but only for content without graphical content;
3. Users' feedback to the reliability of ReadSpeaker is neutral. Questions are raised for example, pictures and hyperlinks didn't work; ReadSpeaker doesn't work on the courses when the user is the author of the material.

## Findings and Recommendations

1. ReadSpeaker is text to speech software to speech-enable websites. It can be particularly useful for users with accessibility issues such as dyslexia or visual impairments.
2. ReadSpeaker is a "Software as a Service" SaaS solution. The application is hosted by ReadSpeaker. This minimises the support required from the University as it will only require configuration in Canvas.
3. ReadSpeaker works with Canvas in the desktop environment but it does not work with Canvas mobile application. It works on the mobile browsers with limited functionalities.
4. ReadSpeaker uses Full Time Equivalent (FTE) license model which is a headcount-based subscription model. To save costs, it would be worth exploring the possibility of configuring ReadSpeaker for selected users.
5. The initial evaluation took place amongst a small number of users. Further user evaluation is still required with a wider population of users including users with dyslexia or visual impairment, lecturers and students.
6. The IT Innovation Centre recommends the adoption of ReadSpeaker, although a final decision on the adoption of this product should be made by Canvas e-learning support team in CLAD.