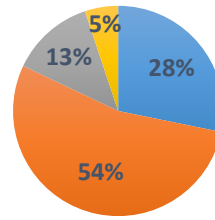




Is it likely the student could use
Dragon in an examination?



■ Yes ■ Maybe ■ No ■ No response



Talking in Exams Project Report 2016

CALL Scotland

Talking in Exams Project Report

December 2016

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Talking in Exams Project Outline

The Talking in Exams project ran during the academic session August 2015 to June 2016. The project had five objectives:

1. Create guidance materials for getting started with speech recognition.
2. Build a community of practice where we can share what works and what doesn't.
3. Provide Dragon licences to schools.
4. Support schools to trial speech recognition software.
5. Gather and publish case studies/reports.

The project aimed to investigate the use of Dragon NaturallySpeaking speech recognition software for candidates with disabilities or additional support needs, for use in SQA assessments.

28 schools or services were provided with a single computer licence for Dragon Naturally Speaking Professional Version 13. CALL Scotland provided initial training on the software, support visits to schools, and guidance and advice via new pages on the CALL Scotland website. 20 schools subsequently identified 70 students to participate in the trials. Practitioners were asked to complete a student record for each learner, and feedback was received from 12 schools in respect of 39 of the 70 students.

A Round-Up Seminar was held on 2nd June 2016, when delegates heard from staff and students who had participated in the project. Teachers and students were excited about the potential of speech recognition software and students with additional support needs reported that they could produce work independently which more accurately reflected their cognitive level.

Practitioners advised that Dragon was helpful to improve spelling, address handwriting difficulties, improve independence and self-esteem. Students who achieved success with Dragon tended to have good oral abilities and clear speech.

Practitioners were asked whether they thought it was likely that students could use the software in an examination setting: teachers judged that use of Dragon in examinations was *likely* for 11 students; it was a *possibility* for 21 students (with more time, practice and support); and it was *not likely* for 5 students (no response for 2 students).

The results of the project suggest that Dragon is a viable option for many students with writing difficulties.

Talking in Exams Project Key Findings

- This project has demonstrated that speech recognition can help students achieve previously unattainable literacy goals. Schools should explore and evaluate speech recognition software for students with additional support needs.
- Students with additional support needs who had success with the software are producing work independently which more accurately reflects their cognitive ability.
- There was a marked improvement in student engagement, motivation and self-esteem when they were able to produce presentable text of a higher literacy standard.
- Moving away from the use of readers and scribes requires a culture shift. Students are more likely to do this if they feel confident in the technology alternatives and have had experience of using assistive software combined with support and encouragement of their teachers.
- Training and support for staff and students are essential for successful introduction of new technologies.
- It is important to raise awareness of the software in varied and multiple ways in the school and with parents/carers. It is helpful to highlight the relationship between Assistive Technology and raising attainment and ASN and accessibility legislation.
- Technical issues were a barrier to the progress and/or the continued use of the software in some schools. Some students were unable to participate in the project and therefore missed the opportunity to trial the software.
- For some schools, additional support is required to ensure the successful implementation of speech recognition software in SQA examinations. CALL Scotland will continue to work with the SQA to ensure all schools are provided with the relevant information to support (and encourage) the use of all assistive software with digital exam papers for students with additional support needs.
- Working collaboratively and sharing good practice is essential to the success of nationally organised initiatives and research projects.

Introduction

With speech recognition – or voice recognition – learners can speak to a computer, tablet or smartphone to control it, give commands and dictate text.

Speech recognition can be very helpful for people with physical difficulties, dyslexia, writing or spelling difficulties or visual impairment and it is built into all modern computer, tablet and smartphone operating systems.

This report summarises the findings of pilot trials to investigate the viability of using Dragon NaturallySpeaking in SQA examinations and assessments. The *Talking in Exams Project* ran from June 2015 to June 2016.

Use of Speech Recognition Software in SQA Assessments

CALL Scotland has been researching the application of speech recognition software by learners with additional support needs since 2001.¹ One of the drivers behind this research is the widespread use of human scribes in SQA examinations (SQA received 14,962 requests for use of a scribe in 2011): can speech recognition offer an alternative, more independent method of support?

In 2011 CALL Scotland produced a report, subsequently updated in 2013², on the technical aspects of four different speech recognition programs: Dragon NaturallySpeaking 11 Home and Premium; Windows 7 speech recognition; and WordQ+SpeakQ. At the time it was decided to investigate Windows versions of the programs because the vast majority of computers in secondary schools in Scotland are Windows PCs.

Since 2013, interest in speech recognition in Scotland (and internationally) has heightened, partly because the technology is now more common and more effective, and partly because of greater awareness of the possibility of its use in assessment, due to for example the introduction of the SQA National Literacy assessments, where scribes cannot be used for assessment of writing, but technology, including speech recognition, can.

On 15th January 2015 CALL Scotland organised a seminar at the University of Edinburgh, supported by SQA, where the use of speech recognition software in assessments and examinations was discussed. (A recording of the seminar is available on CALL's website under 'Archived webinars' - <http://www.callscotland.org.uk/professional-learning/webinars/> - scroll down to 'Speech Recognition in Practice').

Participants heard very positive reports about speech recognition from practitioners in East Lothian, Scottish Borders and Stirling, and these suggested that the newer versions of speech recognition software, particularly Dragon NaturallySpeaking version 12, were more accurate and reliable and

¹ Introducing Speech Recognition in Schools: Final Project Report. <http://www.callscotland.org.uk/downloads/books/>

² Speech Recognition in National Assessments: Update August 2013 <http://www.adapteddigitalexams.org.uk/getting-started/reports/>

therefore a more realistic and practical method of support for learners with additional support needs, than previous versions.



Figure 1: Fiona Scott, East Lothian (ASD and dyspraxic) gave an impressive presentation and demonstration at the seminar. Fiona now uses Dragon software at university, having developed her skills in 4th year at high school.

Educators attending the seminar were keen to continue the conversation and explore speech recognition for themselves.

The seminar participants discussed how this work could be taken forward, and CALL Scotland designed and proposed a project, which was subsequently funded by SQA, to carry out action research on the use of speech recognition in assessments and examinations.

The resulting ***Talking in Exams*** Project comprised five tasks:

1. Create guidance materials for getting started with speech recognition.
2. Build a community of practice where we can share what works and what doesn't.
3. Provide Dragon licences to schools.
4. Support schools to trial speech recognition software.
5. Gather and publish case studies/reports.

Task 1: Create guidance materials for getting started with speech recognition

The CALL team carried out research on the use of speech recognition in education and created a new dedicated section on the topic on the CALL Scotland website

<http://www.callscotland.org.uk/information/speech-recognition/>


The guidance materials cover the most common speech recognition software tools:

- ✓ Dragon Naturally Speaking (Windows)
- ✓ Windows 7 (and above) built-in speech recognition (Windows)
- ✓ Siri (iPad)
- ✓ Google Now (all platforms)
- ✓ Google Voice Typing (all platforms, Android, Chromebooks)
- ✓ Mac OS Dictation (MacOS)
- ✓ WordQ + SpeakQ (Windows).

Each section contains a summary of the software and advice on setting up and/or purchase of software, links to tutorials, videos and research. Generic guidance on *Getting Started with Speech Recognition*, and information about the *Talking in Exams Project* was also written.


Speech Recognition

With Speech Recognition you can speak to your computer, tablet or smartphone to control it, give commands and dictate text.




- Useful for anyone because you can typically speak faster than you can type;
- helpful for people with physical difficulties, dyslexia, writing or spelling difficulties, or visual impairment;
- freely built in to all computer, tablet and smartphone operating systems;
- you can also buy software for Windows and Mac computers.


What's available...




Dragon NaturallySpeaking
Windows Speech Recognition software.




Siri
Intelligent personal assistant on the iPad.




Android
Google Voice Typing is Android's version of speech recognition.



Google Now
Digital personal assistant.




Windows Speech Recognition
Built into Windows 7 and above.




WordQ + SpeakQ
For people who have literacy difficulties.

Find out more about...



Getting started
with Speech Recognition.



Talking in Exams Project
Speech recognition in assessments and examinations.

Task 2: Build a community of practice where we can share what works and what doesn't.

Staff who attended the seminar on 15 January 2015 were invited to participate in the Talking in Exams project. It was also advertised on the CALL website and practitioners across Scotland were invited to express an interest.

28 schools or services subsequently took part in the project, in 16 local authorities (Aberdeenshire, Ayrshire, Clackmannanshire, Dumfries, East Ayrshire, East Renfrewshire, Edinburgh, Falkirk, Fife, Glasgow, Midlothian, North Lanarkshire, Renfrewshire, Scottish Borders, South Ayrshire and Stirling).

CALL developed and delivered half-day Professional Learning sessions in different parts of Scotland:

- 3rd June, Dunblane (attended by 6 staff);
- 15th June, Newton Mearns (attended by 14 staff);
- 17th June, CALL Scotland, Edinburgh (attended by 13 staff).

As many of the group were from non-central belt authorities and therefore geographically distant, we proposed to utilise Microsoft OneNote on Glow for communication and collaboration with project participants. However, too many colleagues were not able to access this or did not feel it was suitable for this purpose.

We contacted participants to gather their views on why they did not feel that Microsoft OneNote was a suitable tool for collaboration, and a number of reasons were given, such as:

- I don't have Glow log in details (and I don't know who to speak to about this);
- I have forgotten/lost my Glow log in details (and I don't know what to do);
- I have no experience of One Note and don't know what to do;
- I don't get any alerts if something is added so I forget to look at it.

Some collaboration was achieved using OneNote but it did not work in the way that we had anticipated and so the group were notified of developments and updates via group email.

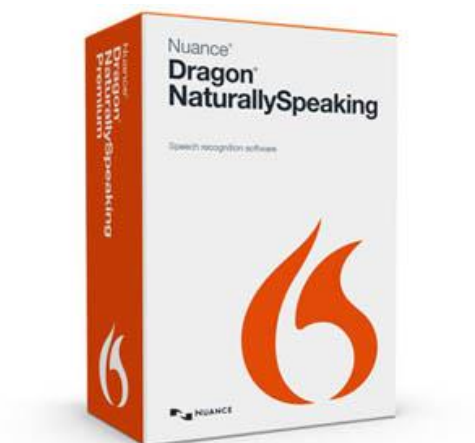
Task 3: Provide Dragon Naturally Speaking licences to schools

Preliminary investigations and discussions with schools indicated that Windows computers were most commonly available in schools, and so the project focused on speech recognition software for the Windows platform. Initial research, reinforced by discussion at the seminar in January 2015 indicated that the free built-in Windows speech recognition could be unreliable, while presenters at the seminar reported success with Dragon NaturallySpeaking. The team considered including WordQ+SpeakQ in the project, but decided that it was more practical to use just one speech recognition package. Basic installation of assistive technology software on school computers can often be challenging to achieve; and we also felt that learning to use one program would be more feasible for staff and learners. However, we are keen to carry out a similar investigation with the other speech recognition programs, particularly WordQ+SpeakQ, in future.

The project team approached Nuance UK, publishers of Dragon, and secured an agreement to purchase a site licence for Dragon NaturallySpeaking Professionals 13, with permission to provide one licence to each of the participating schools. The software could be installed on one computer and multiple students could use it.

The participants of the Talking in Exams project were all provided with a good quality [Andrea NC-181VM USB headset](#).

Participants were required to sign an agreement (Appendix A: Talking in Exams Participant Agreement) on receipt of the software and headset.



Task 4: Support schools to trial speech recognition software

Identifying which students might benefit from Speech Recognition

Which learners would benefit from using speech recognition? During the introductory sessions with project participants we discussed what criteria would identify a student as a good candidate for success with speech recognition.

Generally, speech recognition works well for students who can express thoughts and ideas better verbally than in writing. It has a good chance of working if the student can learn or already has the following skills:

- ✓ Consistency of enunciation, volume and pitch
- ✓ Syntactical speech patterns
- ✓ Ability to inhibit "uhms" and "ahhs"
- ✓ Ability to express ideas in verbal language
- ✓ Attention to auditory and visual details
- ✓ Ability to multitask
- ✓ Ability to edit
- ✓ Ability to problem-solve
- ✓ Ability to self-monitor
- ✓ Ability to tolerate frustration
- ✓ Motivation to use technology as an alternative writing method

We researched tools for identifying potential successful users of speech recognition and recommended Bridgette Nicholson's [Evaluation for Potential Use of Speech Recognition](#) tool to participants, from Quality Indicators for Assistive Technology (QIAT) resource bank.

1	2	3	1=Yes/Good 2=Developing 3=No/Poor	1	2	3	1=Yes/Good 2=Developing 3=No/Poor
Work habits / behavioral: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Frustration tolerance <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Attention to detail <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Patience, perseverance, persistence <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Emotional consistency & control <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> May be willing to use computer for writing if experiencing greater degree of success using speech recognition <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Motivated / willing to use computer for generating ideas and putting them down in written form				Basic computer skills: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Open and close programs+ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Manage windows - move from one window to next <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Can use mouse <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Copy, paste from one program to another <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> File management - open, create, save			
Cognitive skills: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Self-monitoring and self-correction <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Concentration <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Memory <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Problem solving				Consistency of speech: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Pronunciation & speech patterns <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Intelligible articulation, voice quality & motor planning <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Voice quality			
Reading & Writing: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> At least 3rd grade reading level <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Word recognition for error recognition / omissions <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Visually able to find corrections in list of 5 - 10 alternatives <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Basic knowledge of grammar rules, punctuation, sentence and paragraph construction				Language: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Thought organization, <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Retain thoughts and ideas <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Planning <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Formulate ideas and verbalize			
Grade levels: Reading: <input type="text"/> (3rd grade reading preferable) Written spelling: <input type="text"/> Oral spelling: <input type="text"/>				Support and Training: Who is available to provide support and training? Include educational team, parents and others: <div style="border: 1px solid black; height: 50px; width: 100%;"></div>			
Notes: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>							

Figure 2: Evaluation for Potential Use of Speech Recognition

Introducing and Implementing Dragon NaturallySpeaking

For teaching students to use the software we suggested that schools adopt the protocols outlined in [Speech Recognition as AT for Writing](#), by Daniel Cochrane and Kelly Key. This uses the following approach:

- **Consider It!** - Is Speech Recognition (SR) an appropriate tool for the student and the learning tasks? Not every student can use SR, and you can't necessarily use it for every learning task.

- **Try It!** - SR is not magic. You must teach the student to use SR, and to compose and dictate.
- **Assess It!** - What does SR offer compared to handwriting, typing or other writing tools?
- **Implement It!** - If SR looks like it is a viable tool, how can it be introduced into class and at home?

In addition to the web pages and initial Professional Learning training sessions, CALL responded by phone, email and personally supported four schools through personal visits to assist staff and research how learners were using speech recognition. At all stages of the project help was available to make it successful.

CALL Resource Guides

The CALL team created and distributed additional resources to help practitioners introduce Dragon NaturallySpeaking to students:

- “Ten Golden Rules for Speech Recognition”
- “How to Train your Dragon”.

Task 5: Gather and publish case studies/reports

The main purpose of carrying out the project was to determine if speech recognition is viable for implementation in SQA assessments and examinations.

The following sections summarise the results of the project in terms of the schools and services that took part, numbers of students, feedback from practitioners and learners, case studies of individual students’ experiences, and evaluations.

Participating schools and students

28 schools or services in 16 local authorities participated in the project, and 70 students were identified by practitioners to trial the software following the initial professional learning sessions (Table 1). Eight of the schools did not identify any learners, leaving 20 actively involved schools (71%). Of the eight that did not take the project forward, one cited technical difficulties getting the software installed; one could not identify suitable students; no feedback was received from the other six schools.

Table 1: Talking in Exams participating schools

School	Authority	Number of Students identified to participate
School 1	Glasgow	4
School 2	Edinburgh	17
School 3	Fife	2
School 4	East Renfrewshire	3
School 5	Fife	1
School 6	East Ayrshire	0
School 7	Dumfries	0
School 8	East Renfrewshire	1
School 9	Scottish Borders	1
School 10	Scottish Borders	9
School 11	Scottish Borders	2
School 12	South Ayrshire	4
School 13	Falkirk	2
School 14	East Ayrshire	0
School 15	Fife	4
School 16	Scottish Borders	0
School 17	Aberdeenshire	3
School 18	Renfrewshire	6
School 19	Aberdeenshire	1
School 20	East Renfrewshire	0
School 21	East Renfrewshire	0
School 22	Edinburgh	1
School 23	Midlothian	1
School 24	North Lanarkshire	3
School 25	Scottish Borders	1
School 26	Fife	0
School 27	Clackmannanshire	0
School 28	Renfrewshire	2
School 29	Ayrshire	1
School 30	Stirling	1
TOTAL		70

70 students had the experience of using Dragon Naturally Speaking V13 software in 20 schools. Multiple profiles can be created on a single licence of Dragon in an educational institution which allowed several students to try speech recognition, albeit only using it one at a time on the computer the software was installed on. The number of students in each schools ranged from one learner in several schools to seventeen in Kaimes High School in Edinburgh where teacher Angela Verity piloted Dragon with students on the autistic spectrum aged from 12 to 17. Angela was extremely positive about the experience for her students, many of whom did not have the literacy or cognitive skills to independently produce any text.

Practitioners were asked to complete a Student Record in respect of each learner that took part in the project (Appendix B: Talking in Exams Student Record).

The student record recorded the underlying reasons for the student's need for support (such as ASD, dyslexia, dyspraxia, etc), and an indication of the student's skills, such as quality of written work; reading ability; verbal ability; ICT skills; and motivation to use speech recognition.

The Student Record also evaluated the outcomes of the trial in terms of the learner's skill, motivation and self-esteem with Dragon, key advantages of the software (if any), and whether the practitioner felt Dragon was likely to be a practical option in an examination.

Student Records were received from 12 schools (60% of the actively participating schools), in respect of 39 of the 70 (56%) students initially identified by schools.

Underlying reasons for Support Needs

Table 2 summarises the reason(s) for additional support needs for students that took part in the Talking in Exams project.

The most common underlying reason giving rise to a need for additional support was Specific Learning Difficulty/Dyslexia, identified for 19 students; followed by Autistic Spectrum Disorder (ASD), for 15 students.

Support needs arise from:	Number of students
ASD	7
ASD type difficulties, Specific Learning Difficulty/dyslexia	2
ASD, ADHD	1
ASD, Dyslexia	1
ASD, Dyslexia, ADHD	1
ASD, Dyspraxia	1
ASD, Learning Difficulty	2
Aspergers	1
Dyspraxia, Organisational difficulties	1
Dyspraxia, Specific Learning Difficulties/Dyslexia, Visual Stress	1
Physical Disability	1
SEBN, very difficult to motivate and reluctant to write	1
Specific Learning Difficulty/Dyslexia	6

Specific Learning Difficulty/Dyslexia, ADHD	3
Specific Learning Difficulty/Dyslexia, Dysgraphia	1
Specific Learning Difficulty/Dyslexia, Lack of focus/concentration	1
Specific Learning Difficulty/Dyslexia, Language and Communication Disorder	1
Specific Learning Difficulty/Dyslexia, Very low self-esteem and lacks confidence with written work	1
Specific Learning Difficulty/Dyslexia, Visual Stress	1
Specific Learning Difficulty/Dyslexia, Hand tremor.	1
Specific Learning Difficulty/Dyslexia, Visual Impairment.	1
Specific Learning Difficulty/Dyslexia, Epilepsy, OCD	1
Specific Learning Difficulty/Dyslexia; Learning Difficulty	1
Specific Learning type Difficulty/Dyslexia, Learning Difficulty	1
Grand Total	39

Year/stage breakdown

Almost half the students (19) were in fourth or fifth year, 8 students were in third year and 7 students in second year, reflecting the focus and title of the project (Figure 2).

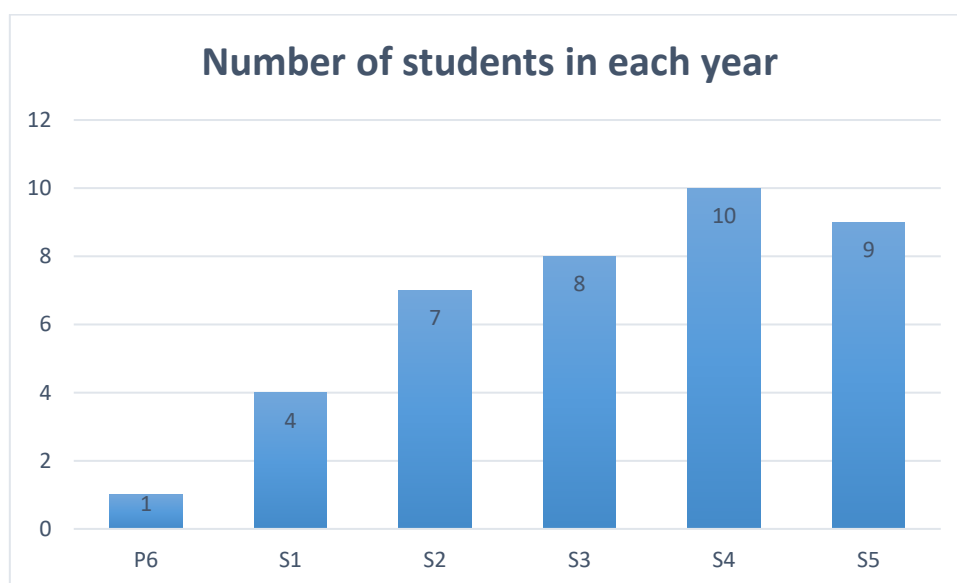


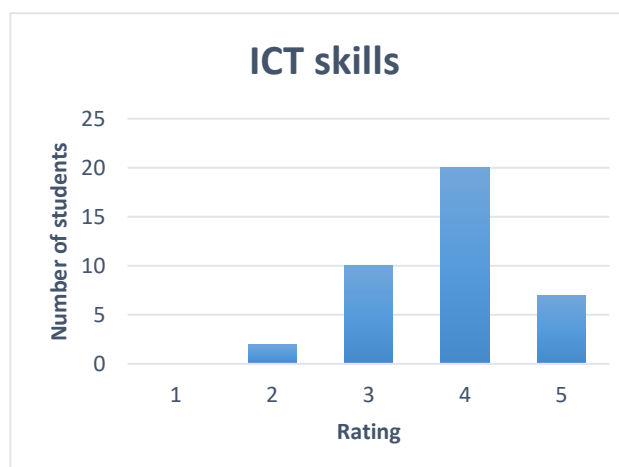
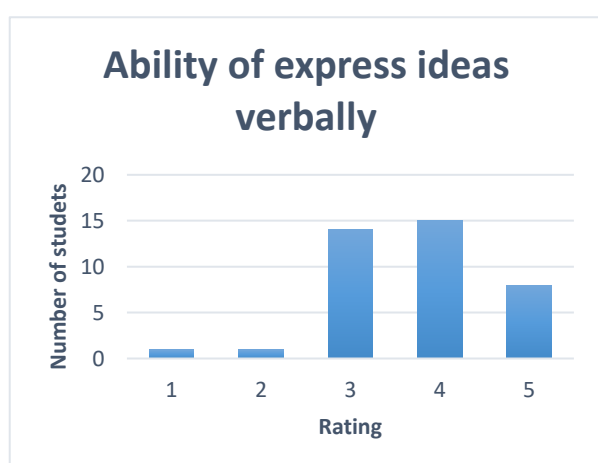
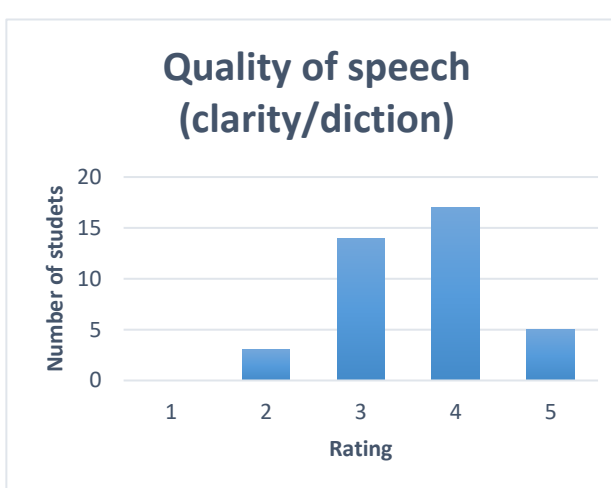
Figure 3: Breakdown of students by school year (n=39)

Student skills

Practitioners were asked to rate students' written and oral skills on a scale from 1 (poor) to 5 (excellent). Students identified by practitioners to trial Dragon were typically judged to have better oral abilities and ICT skills compared to their handwriting skills (.

Table 2).

Table 2: Student skills



Results

Student motivation to use Dragon

Practitioners were asked to rate the students' motivation to use the Dragon software. The student records were completed towards the end of the trial, and so motivation was reported to be high for students who had achieved some success with the software, but was low (unsurprisingly) for students who had not had success with Dragon (Figure 4). The mean motivation rating was 3.97 for 39 students.

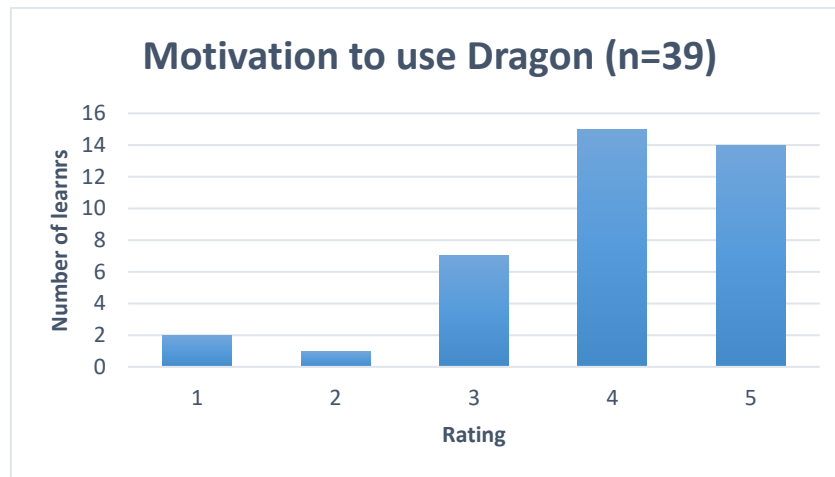


Figure 4: motivation to use Dragon

Student skills using Dragon speech recognition software

Practitioners rated students' skills with Dragon to be 3.58 on average out of 5. Three students had poor skills, because the software was not effective and so they did not use it. There were several comments suggesting that students' skills would be likely to improve with more practice.

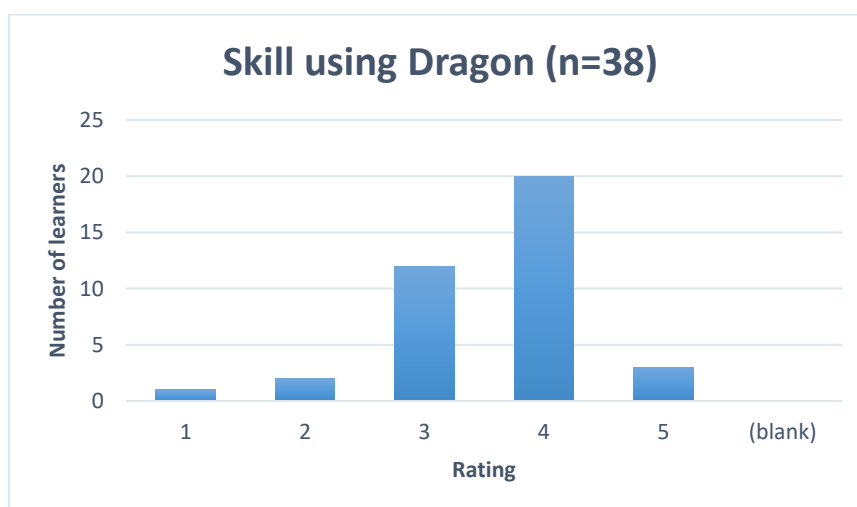


Figure 5: Student skills using Dragon

Impact on self-esteem

Practitioners were asked to rate the students' self-esteem in terms of their work with and without using Dragon. Most of the students were judged to have greater self-esteem with their work produced with Dragon (average = 3.77) than without (average = 2.77).

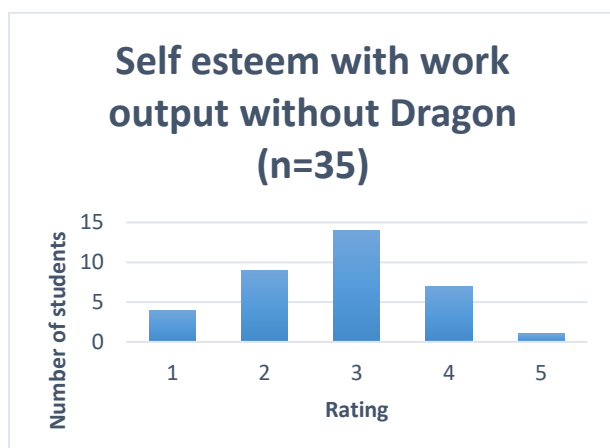


Figure 6: Self-esteem with work output without Dragon

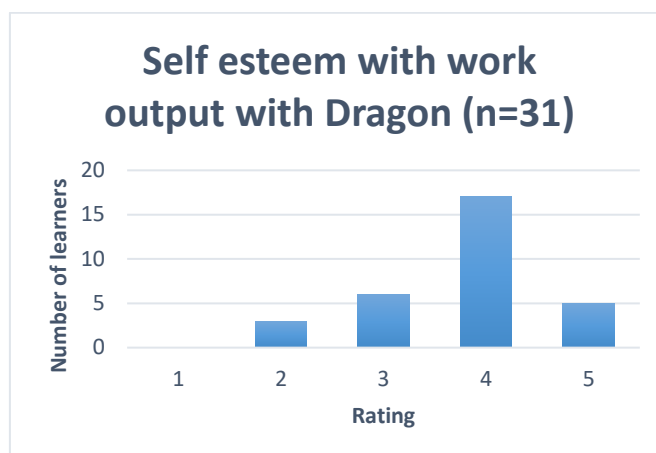


Figure 7: Self-esteem with work output with Dragon

Practice with Dragon

Practitioners were asked to record the number of times students used Dragon per week. Just over half the students were reported as using Dragon once a week; two students used twice a week and three students used it 3 times a week. 15 students had less frequent practice - some used occasionally, and a few students had just one or 2 practice sessions.

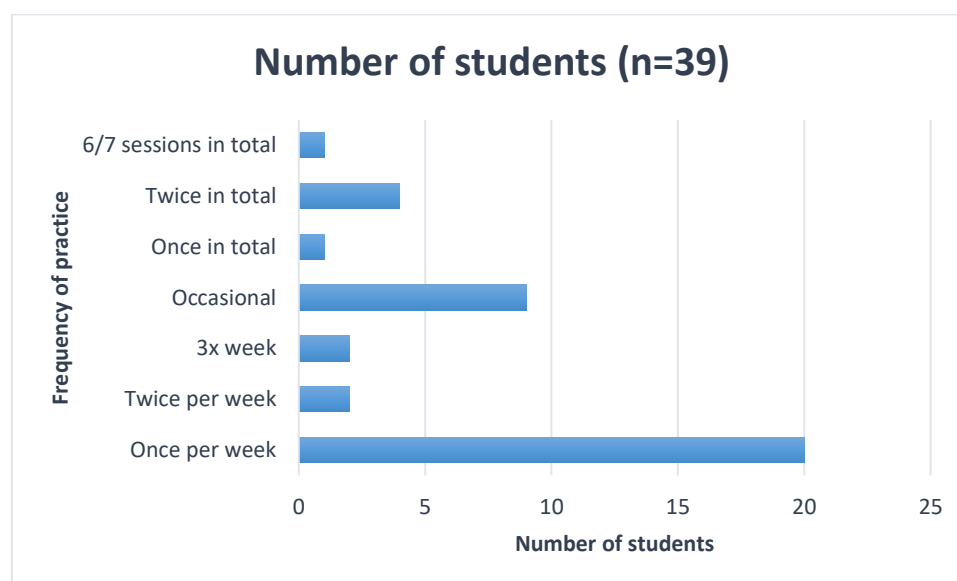


Figure 8: Frequency of practice

Use of Dragon in class

Practitioners were asked whether class teachers were 'on board' with the use of Dragon speech recognition software. In the case of 4 students, all class teachers were reported to be supportive of students using Dragon in class; some class teachers were on board for 20 students; and for 4 students (who did not find Dragon successful), it was not being used in class at all.

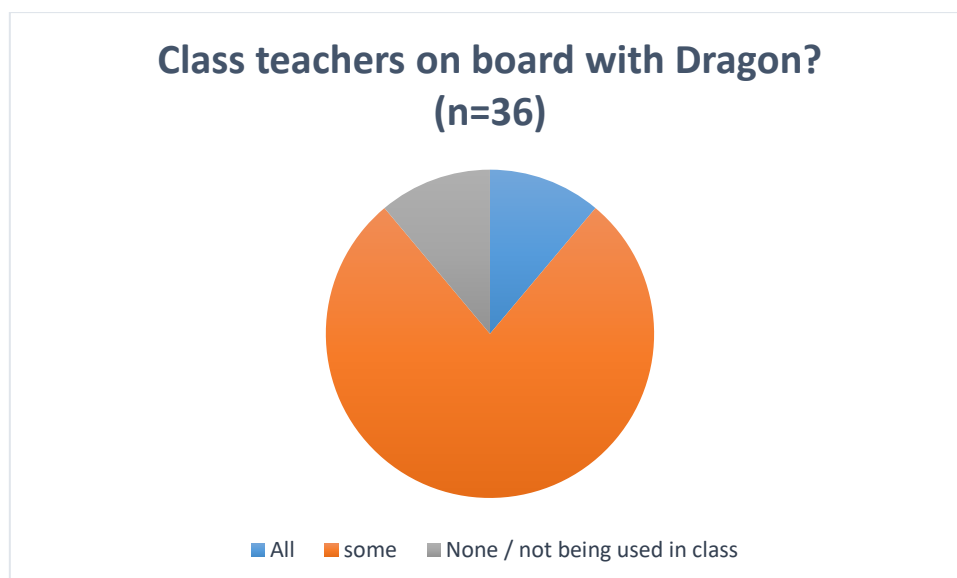


Figure 9: Are teachers on board with Dragon in class?

The schools that were able to get all or most staff on board were those where the lead person participating in the Talking in Exams project had facilitated an information/training session to introduce the software and to show how it could benefit students with additional support needs. Kaimes High School invited Shirley Lawson to talk about the benefits of this assistive software and her live demonstration enabled staff to appreciate how much the software had improved compared to earlier versions which were unreliable and required a lot of training and perseverance.

In the schools where staff did not get on board with the idea it was found that they were either...

- Resistant in general to students using assistive software of any type;
- Feeling overwhelmed with learning about a new piece of software due to their own technical competence and confidence;
- Unable to see it practically working in a class setting with one student talking out loud into a headset.

Dragon NaturallySpeaking for Talking in Exams

The main research question of the project was to explore use of speech recognition in SQA examinations and assessments. Accordingly, practitioners were asked to consider *“Is it likely that this student could use Dragon Naturally Speaking in an exam setting?”*

Table 3: Likelihood of using Dragon in examinations

	Yes	No	Maybe	No response
Is it likely that this student could use Dragon in an exam setting?	11 (28%)	5 (17%)	21 (54%)	2 (5%)

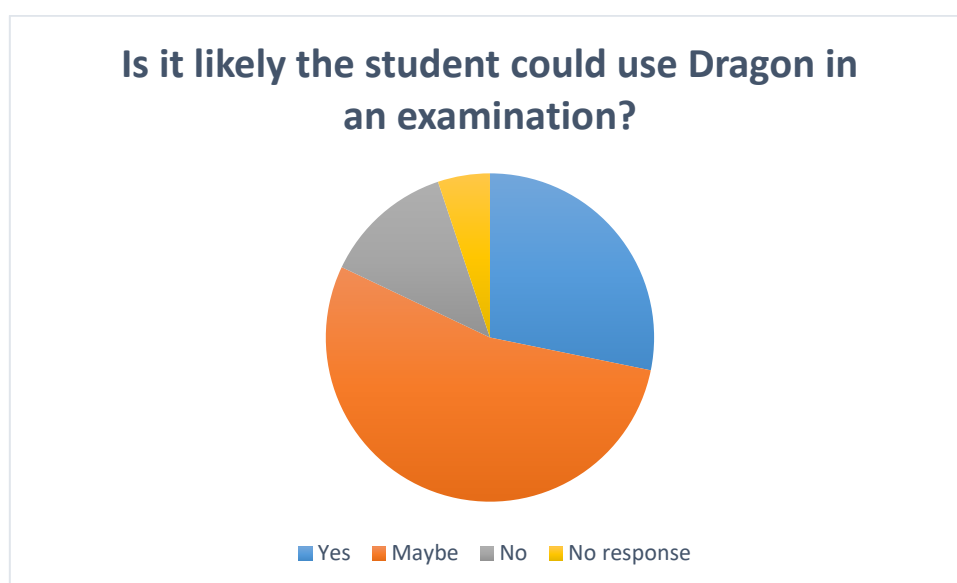


Figure 10: Likelihood of using Dragon in examinations

Reasons for using Dragon in examinations

Practitioners judged that **11 (28%)** of participating students would be likely to use speech recognition in an exam. Reasons given by practitioners for considering use of Dragon in examinations were:

- Has already completed end of unit assessments and AVU [Added Value Unit] using Dragon and planning its use for language-loaded prelims. Very pleased with the results and very happy to continue to use in SQA exams next year.
- Have seen a steady improvement as he gets more used to the commands. Intention is to use Dragon for assessments in language loaded subjects.
- Needs more practice to gain mastery of the commands, but very keen. Has used Dragon for an end-of-unit Science assessment, and keen to use it in his language-loaded subjects
- More time required to master this. I would benefit from something like this as he is extremely slow at reading and writing. He's very bright orally.

The **key advantages** that Dragon offers these students were reported as being:

- Overcomes his concerns in particular, about his poor spelling. Gradually finding it a quicker alternative, certainly to writing, and also to typing.
- Overcomes his concerns about his handwriting and his spelling.
- He would love to use this. We don't feel experienced enough yet.
- B's verbal output is much more advanced than his written, so therefore finds it difficult to get his thoughts on paper. Using Dragon means that he can work independently without the use of a scribe.
- Independence, self-esteem.
- No need to think about spelling - less frustrating! Pace of work.
- Gets his ideas down on paper and allows him to be more independent.
- Motivation to complete written tasks and engage in his learning.
- A huge improvement in pace of written work and the ability to complete tasks. A is extremely slow with written work. Enables A to concentrate on his thoughts. With more time for A to work with software, his skills would definitely improve
- C finds this very useful. When writing he finds it difficult to record his answers accurately and he says that with a scribe it is awkward to make changes. With Dragon he found it easy to dictate his answers and liked working independently. Definitely has ability to further improve with more time.

Table 4 gives averaged skill and ability ratings of the 39 students who trialled Dragon, broken down according to whether they are judged likely to use the software in an examination, or not. The small numbers of students involved means that we cannot draw clear-cut conclusions, but the average scores across the different skill areas do offer some insights. Students who were judged more likely to use Dragon in exams tended to have better speech and oral skills than those who were not, and superior ICT skills. Those who were successful with Dragon were judged to have slightly poorer handwriting skills than those who did not. The students who were successful with Dragon enjoyed greater motivation and viewed their work completed with Dragon more positively.

Table 4: Influence of students' skills on use of Dragon in examinations

	Average for 'Yes' students (n=11)	Average for 'maybe' students (n=21)	Average for 'no' students (n=5)	Average - no response given (n=2)
Quality of handwritten work	2.18	2.19	2.40	2.00
Quality of typed work	3.45	2.90	3.40	3.50
Reading level/ability	3.00	3.45	3.80	2.50
Quality of speech	3.91	3.81	2.60	2.50
Ability to express ideas verbally	4.00	3.86	2.40	4.00
ICT Skills	4.09	3.76	3.60	3.50
Motivation to use Dragon	4.73	4.05	2.00	4.00
Skills in using Dragon	3.82	3.80	2.40	3.00
Self-esteem without Dragon	2.36	2.94	3.00	3.00
Self-esteem with work output from Dragon	4.27	3.73	2.67	3.00

Factors to address to support use of Dragon in examinations

Practitioners reported that **21** students (54%) **may** be able to use the technology in an exam setting. Comments from staff suggested that they would need more time, practice, confidence and technical and practical support:

- Trialling at request of his English teacher, who finds it difficult to get completed, extended writing activities from him. Early days. Concerned about his lack of focus and seriousness, but will see how he progresses with further, more intensive training.
- We found the software difficult to operate on our computers. The IT technicians also had problems and installing, pupil was not keen to use. Maybe use in exams, at later stage.
- Dragon software only installed on one PC in SfL department. Lack of time to use software due to timetable constraints.
- Poor handwritten work both in terms of legibility and spelling. Slow on keyboard. Also, can't identify mistakes. Maybe [use in exams] - would need more practice but that is the goal we are aiming for.
- We just haven't had enough time to access it yet!
- When asking for the software to 'correct' we find that the processing is quite slow
- Pupil has very low self-esteem and feels he is not good at anything. It is necessary to encourage pupil to use the software regularly.
- Pupil is quiet and needs reassurance when using Dragon Speak but it is very advantageous for him.
- Student now left to go to college but was interested in purchasing own licence
- Hard to start with, got better. Only 1 laptop - had to be shared, not always available. Let down by spec of laptop... slow to start, didn't always work - 'frustrating'
- Is taking time to realise how much checking he needs to do to ensure that the accuracy is there in his writing. Class teachers reluctant to let him use it in the class where it might 'disturb' others.
- Excellent program. Very impressed that it only picks up user's voice and no one else. We would only use Dragon for exams if it was on more than one machine in the room.
- This pupil feels his difficulties are not as severe as they are and did not fully engage with practicing and using Dragon despite the benefits it will give him.
- Issues with network installing as profile requires more disc space than local policy allows. A has developed a strong relationship with SfL staff allowing him to give anything a go. In terms of literacy he would have been more reticent before Dragon.

Although practitioners were uncertain whether Dragon would be practical in examinations, they did identify the following **key advantages** of using the software, for their students:

- Hopefully will motivate him to produce better, and longer pieces of, written work and help alleviate concerns about spelling.
- Can dictate answers rather than having to write which is very tiring.
- Relieves issues with spelling and handwriting.
- Presentation/pride in finished work. Speed he is able to finish tasks. Ability to read what he has done - both J himself and his teachers. Enjoys using it.
- He sees how clever it is. He sees how quick it is.
- He was very impressed and thought it could help him
- M's handwriting is almost illegible. He has good ICT skills so using this software will play to his strength.

- Allows him to express himself more freely without prompting, and at his own pace; or without the barrier of limited keyboard skills
- Enables pupil to express ideas clearly and increases confidence
- Pupil has difficulty expressing written ideas in allocated time but Dragon-speak helps this
- Helped with extended writing tasks
- Quantity and Speed of output has improved. Ability to use vocabulary he wouldn't otherwise choose to use as it would be too difficult to spell.
- This pupil likes to be independent, but also likes the 'comfort blanket' effect of a human scribe, which he only uses to spell words he is unsure of. The problem is he is more confident in his spelling than he is able. He therefore frequently makes spelling errors without realising. Crucially in some of his subjects this causes the meaning of his answer to be incorrect. The main advantage therefore is that he is able to speak his responses to questions which counters his poor spelling, and also his not knowing when he is mis-spelling.
- Although this pupil has good IT skills he doesn't use spell check because he finds it demoralising to see so many underlined words. Often his spelling is so poor the suggested words offered in spell check bears no resemblance to the original word. This makes him more frustrated.
- Allows him independence. He can verbalise more interesting vocabulary than if he were writing and spelling for himself.
- He can produce a greater quantity of greater work than he can even when using a scribe. His confidence in his own ability has increases.
- Motivation to tackle written tasks. Removes the barrier of the writing of the answer and results in a piece of work well presenters
- Written work completed to a good standard and well presented, motivation to engage in learning was high
- On a regular basis J avoids/refuses to complete written task. He enjoyed using the laptop and it was not perceived as 'writing' and he was keen to read the 'mistakes'. However he was engaged in his learning. Would definitely improve with further training.

Factors reported for not using Dragon in an examination

Practitioners reported that Dragon was not appropriate for use in examinations in respect of 5 (17%) of the 39 students. Factors identified included difficulties with speaking and articulating which meant that the students' dictation was not recognised by the software:

- [Speech] deteriorates when tired. Can be difficult to understand speech. Was initially keen to learn but just proved too difficult
- Whilst T's speech is not too bad, he can run words together. Dragon was unable to decipher, much of what T said. Initially thought it was great idea but gave up very easily (condoned by parents). T would not pay careful attention to instructions. Wouldn't slow speech down, speak more clearly.
- He doesn't like being 'put on the spot' and this program is an expectation of that.
- C is a long processor: one of the longest I've met. She has to remember to turn mic off as the reminder 'please say that again' keeps putting her back to beginning of her thought process.

Talking in Exams Round up event, 2nd June 2016



A seminar held at CALL Scotland, University of Edinburgh on 2nd June 2016 brought together 44 practitioners and students to discuss and report on the Talking in Exams project. The seminar was attended by eight staff and five students who had taken part in the project, together with subject teachers, Support for Learning staff, IT technicians, Education Support officers, university staff, SQA representatives and a supplier of the WordQ+SpeakQ speech recognition software. The session was facilitated by Shirley Lawson (CALL Scotland) and comprised of participant feedback, software demonstrations, discussions and professional dialogue.

TALKING IN EXAMS ROUND UP SEMINAR 2 JUNE 2016

1:30	Welcome and Introduction	Shirley Lawson
1:35	Edinburgh Academy - Teacher and student experience of using the software	Chris Gerrard
2:00	Our Lady's High, Motherwell: Teacher and students' experience - and live demo of using the software. Technical support and network installation.	Sharon Maguire Roddy Moir
2:30	Kaimes High school, Edinburgh: Use of Dragon Naturally Speaking with Autistic students	Angela Verity
2:50	Coffee break	
3:00	Belmont Academy, Ayr: S5 student discusses his use of Dragon in National 5 exams	
3:15	Fiona Scott (Napier University) - Using Speech recognition software at university	Fiona Scott
3:30	Assistive Solutions - Word Q/Speak Q software: an alternative solution	David Baxter - Williams
4:00	SQA - Using Speech recognition software in an SQA exam/assessment	Annette Foulcer, SQA
4:20	Round up of the session/Next Steps	Shirley Lawson

Presentations

Our Lady's High, Motherwell

Sharon Maguire presented to the group on her experience of introducing Dragon software to dyslexic and autistic students and the progress that had been made. Two students demonstrated the software and both were clearly thrilled with the progress they were making despite being highly dyslexic and having previously struggled with literacy. Such was the success of the software in raising attainment and confidence that Sharon was able to persuade colleagues and senior management that this assistive software was an essential tool for many of their students to reach their full potential. It was decided that a site licence would be purchased and the software was subsequently installed on over 200 computers in the school. (See CALL Scotland website for [Dragon pricing options](#).)

Roddy Moir, IT technician, spoke about how they had done a network installation of the software to avoid manual installs on individual computers and talked about how students could access their profile on any machine. Roddy generously agreed to be a point of contact for anyone who requires technical input on Dragon installation. (Please contact [Shirley Lawson](#) at CALL Scotland to get his email address.)

Edinburgh Academy

Chris Gerrard presented on Edinburgh Academy's experience and highlighted the logistics and practicalities that enabled the trial to be a success. An S1 student confidently presented on his own personal, successful experience of using Dragon.

Belmont Academy

An S5 student at Belmont Academy who had just completed National 5 English, History, RMPS, Modern Studies and Psychology using Dragon software gave an insightful presentation on the software.

Fiona Scott

Fiona Scott added to the student voice and talked of her use of Dragon software post-school. Fiona is autistic and dyspraxic and has just completed her first year at Napier University studying Social Sciences. She has been using Dragon software since 4th year of high school and although a very accomplished user of the software, she did not feel confident enough about using it in her final SQA exams. Primarily this apprehension was about the software not recognising new words and that time would be spent correcting and training. In retrospect this scenario could have been avoided if a supporter had been there in the exam room to note any words that Fiona spoke and the software did not pick up, so she could continue dictating and not lose her train of thought. Now at university, Fiona also uses a Dictaphone to record her essay plans and then imports the audio file into Dragon on her laptop when she gets home and the software transcribes the audio file.

WordQ+SpeakQ

Although the software used during the Talking in Exams project was Dragon Naturally Speaking software, it was important to alert seminar participants to the availability of other programs. David

Baxter-Williams from Assistive IT Solutions talked about WordQ+SpeakQ, which combines text prediction software with speech recognition.



CALL Scotland's website has more information on [Word Q Speak Q](#)

SQA perspective

Annette Foulcer (SQA) answered questions on using the software in exams and clarified the criteria for students to be permitted to use Dragon in SQA external examinations. Dragon is regarded as an Assessment Arrangement, and as such, its use is governed by the following principles³:

- Candidates for whom assessment arrangements are provided should potentially have the ability to achieve the national standards, but be unable to do so using the published assessment arrangements for the particular qualification.
- The integrity of the qualification must be maintained.
- Assessment arrangements should be tailored to meet a candidate's individual needs.
- Assessment arrangements should reflect, as far as possible, the candidate's normal way of learning and producing work.

The draft document created collaboratively by the SQA and CALL Scotland – ***Dragon Naturally Speaking in SQA Examinations and Assessments*** – is out for consultation with all the Talking in Exam project participants and will be finalised shortly and distributed to all schools to help them with planning for and using speech recognition software (Appendix H: Speech Recognition Software in SQA Examinations and Assessments).

Key points from the Round Up Seminar

- There is considerable excitement from teachers and students who took part in the project about the potential of speech recognition software. Students with additional support needs are producing work independently which more accurately reflects their cognitive level.
- There is a need to continue to raise the profile of speech recognition software (and other assistive software) with teachers, students, parents/carers.
- There is a need for training and support to be provided to schools to ensure that minor difficulties and issues are not barriers to the continued use of the software. One school ran an after school session for all staff to introduce them to the software and talk about how they could support the practical use of it in the classroom.

³ SQA (2016) Assessment Arrangements Explained: Information for centres.
http://www.sqa.org.uk/files_ccc/AA_AssessmentArrangementsExplained.pdf

- Staff require relevant Career Long Professional Learning opportunities in the use of all ICT to support students with Additional Support Needs.
- Working collaboratively and sharing good practice is essential to the success of nationally organised initiatives.
- The student voice is very important. Involve and include learners in educational decision making.
- In two schools, staff noted that the limitations of having only one licence installed on one machine and senior management approved purchase of a site licence allowing the software to be installed on unlimited machines. In another school, careful timetabling of the Dragon sessions allowed students to trial it effectively.

Talking in Exams Final Feedback

Final feedback forms were sent to all project participants after the Round Up Seminar. Staff were asked to:

- complete a minimum of two student feedback forms;
- submit a case study on one of their students;
- make comments on the draft guidance document on ***Dragon Naturally Speaking in SQA Examinations and Assessments*** created collaboratively by SQA and CALL Scotland;
- offer comments, highlight issues/problems and to sum up their overall experience as trial participant.

Final Feedback Responses

Participants from 13 schools submitted final feedback forms, together with 10 case studies. Comments from practitioners are given below.

Positive Comments

- 1 student using it well and the goals would be for it to be used in exams
- Very successful use of software with 10 students with ASD. Multipurpose use - personal statements, travel logs, sharing thoughts, teacher using it to reinforce instructions. Proposal to head teacher to buy a site licence for Dragon.
- Works very well for student with illegible handwriting but good ICT skills.
- S2 student enjoying using the software and being able to produce a legible, correctly spelt piece of work.
- Well received by students. Motivation and success rate high.
- JM has severe dyslexia and is unable to produce quality work. Quickly learned mechanics and can now produce detailed written work. Positive impact on self-esteem.

Not so positive comments

- One student gave up as the software did not pick up his words (ran words together when speaking)
- Hardware issues have caused problems and frustration. Access to laptop restrictive
- 1 CP student speech too indistinct for the software:
- Student not comfortable using it in front of peers.
- Software did not work well on computer. Step too far for staff just getting used to using IT in assessments.
- The Specific conditions and circumstances within my school prevented me from engaging as fully with the trial as I would have liked which I found really frustrating

Tentative but moving forward...

- Initial technical problems but now working well. Use with S4 and now S2 student.
- Technical issues. Slow start but getting there.

What was helpful during the project?

- Training day in Edinburgh very helpful.
- Training – excellent/practical and hands on. Opportunity to meet/discuss with others from various schools/regions was informative and greatly welcomed.
- Support from Shirley.
- Feedback session on 2nd June very helpful.
- Helpful being able to meet up and actually try the software out for myself before asking pupils to use it
- Workshops were excellent.

What are your next steps?

- Maintain contact with those involved in pilot project – good to hear of other school's progress.
- To build pupils and teacher confidence in time for exams.
- To approach DHT regarding purchasing whole school licence (seemed impressed).
- To approach powers that be to invest in a higher spec laptop
- To continue to raise awareness for staff that the software is available for pupils and to try to get pupils to use it more for internal assessments and unit assessments. I think, though, that the school is a bit away from using the software in final exams at the moment.
- To receive the summary report so that I can use feedback on successful implementation to inform my choice of pupils to work with next session
- I would like would be to continue to keep a link with Shirley and CALL Scotland should I need any specific advice regarding Dragon Software in the future
- To implement Dragon Naturally Speaking into SQA Arrangements for some pupils.
- I would like follow up workshop on using Dragon in Exams. Possibly included in SQA digital papers sessions?

Key factors that contributed to the Dragon trial not being successful



Technical issues with school laptop



On-site IT support unable resolve issues



Focus in school is on other assistive technology (text to speech)

Case Studies

Student 1

AL is severely dyslexic who at the end of S2 had no confidence in his own abilities. However, he is a very creative young man and we don't want his late acquisition of literacy skills to hold him back. As he started S3 A was realising that he is probably the weakest in his class, which made him feel down, but also determined to improve his literacy skills.

At the start of S3 it was obvious that A had matured and was now very willing to work with SfL to improve his literacy skills, it was at this time that he came on board with the Talking in Exams project. A with his renewed intention to help himself, and accept support offered was ideal to offer Dragon to.

At first we had it installed on the school network, with the hope that eventually when we have more licences the Dragon Profile would then become roaming, allowing individuals to use Dragon on any machine they are able to log into in school. However this was not ideal as the Dragon profile requires more network disc space than the standard student allocation. We were able to increase A's network folder, which meant that Dragon now worked adequately as a Network install, however due to the licence restriction we were still restricted to the one machine, which wasn't always available to A. So we uninstalled the software and installed it on a standalone machine. This was more successful as A was now able to keep the laptop and take it to all of his classes.

A has a very clear speaking voice and Dragon was transcribing very well from his first attempt, with very little training required.

A found Dragon most useful for extended pieces of prose, he 'wrote' a number of pieces of English work, and a Personal statement for PSE using the system. He also found it useful for digital style papers in Biology. Before Dragon, A was very reticent about doing extended pieces of writing even with the opportunity to use a scribe A would often still underperform as he felt embarrassed telling someone what to write. Since starting to use Dragon he now is much more flowing in the work he produces and used much higher order vocabulary than he would produce if he was expected to write/type himself. I believe this to be a combination of the use of Dragon, but also his growing confidence and trust of support staff. Now sometimes if A is in a hurry instead of starting up Dragon he will often ask me if I can quickly type something for him, which although is nothing more than old-fashioned scribing, he now has the confidence to use the higher order vocabulary when working with staff as well as the computer.

Although A was just 3rd year for the duration of this trial, he will certainly be using digital assistance throughout S4 for coursework and unit assessments and then also any of his final exams as appropriate, with continued use and practise with Dragon we hope that he will have the confidence to use Dragon and digital question papers with minimal staff input by the summer of 2017.

Student 2

BT is an S5 male pupil who is severely dyslexic and finds it almost impossible to write even a small amount of text due to his spelling and grammar difficulties. B has a very good general knowledge and is very interested in sport and cinema and is keen to talk about these subjects. Dragon Naturally Speaking was introduced to the pupil as his self-confidence was extremely low as he is in N3 and N4 classes and feels different to the other pupils in the very achieving school.

B had Tutorial time when he was first introduced to Dragon NaturallySpeaking but he was initially dissuaded from using the software as he was unable to read the Voice Recognition passage. We practised this with him a number of times and this helped him to overcome this challenge. B then used Dragon NaturallySpeaking weekly to complete homework tasks especially in History which required lengthy written answers. B was able to demonstrate his knowledge of the subject via Dragon NaturallySpeaking and this enabled him to overcome some of the challenges he faces with dyslexia.

B has gained in confidence since using the Software especially as homework tasks now take a much shorter time than when he writes or types his answers. B's parents are keen to extend his use of Dragon NaturallySpeaking and on reading your information regarding use in SQA Examinations and Assessments, I now intend to ensure that B uses the Software regularly and attempts class tests where possible using Dragon NaturallySpeaking. I would also hope that B would use the Software in his SQA assessments and examinations if he is proficient in utilising the software.

Student 3

C is a fifth-year pupil at a high school in Renfrew. He has had a diagnosis of dyslexia since primary school.

He has used a variety of supports during his time in High School, including a reader, scribe, the use of ICT and extra time. It was thought that Dragon might be useful to support C as he can articulate clearly and is comfortable using ICT.

After initially trialling the use of Dragon for some Modern Studies classwork he chose to use it for Part One of his Modern Studies unit assessment on 21/9/15. His feedback was that he found it useful because he finds the dictation very easy compared with writing, when he finds it difficult to record his answers accurately. He also said that when he is supported using a scribe, it is awkward to make changes and he has to stop what he is saying so that the scribe can keep up with the writing. However when using Dragon he found he could easily dictate his answers and liked working independently. On 22/9/15 and 30/9/15. C completed parts Two and Three of his Modern Studies unit assessment using Dragon naturally. C successfully passed this Unit Assessment using Dragon Naturally speech recognition and success in doing so, along with completing it independently and being in control of his assessment has greatly increased C's confidence and sense of worth. At this point he was keen to continue to use, and extend the use of speech recognition to other subjects. He subsequently used Dragon Naturally Speaking for his National 5 Modern Studies and National 5 English prelim exams and then for both these SQA exams.

No major problems were encountered while using the speech recognition. The main issue was time to train the software to learn some subject specific Modern Studies vocabulary.

In the main exams C completed both exams well within the time but used extra time to check that his recording was accurate.

It is hoped that C will continue to use speech recognition when he returns for his sixth year in August 2016. In addition, as he will be undertaking the Volunteering Skills award it is hoped he will become a peer tutor for other pupils beginning to use Dragon Naturally and support them to develop their skills in the use of the software and give them the benefit of his experience of using it in SQA exams.

Student 4

Student: 'CB'

Year: S3.

Completing simple sentences with handwriting

Completing simple sentences with Dragon

Example of handwriting

31.8.15

Simple Sentences 1.

1. This is a dragon.
2. The cat is black.
3. The boy played football.
4. The door opened.
5. It is a sunny day.
6. The wind is blowing.
7. We had a picnic.
8. The sun is shining.
9. The leaves are green.
10. The moon is shining.
11. The moon is shining.
12. The moon is shining.
13. The moon is shining.
14. The moon is shining.
15. The moon is shining.
16. The moon is shining.

Simple Sentences – Speech to Text / sheet 7 dragon

Name [redacted]

- 1 The cat sat on a mat.
The cat sat on a mat. ✓
- 2 The crowd cheered.
The crowd cheered. ✓
- 3 The door slowly creaked open.
The door slowly creaked open. ✓
- 4 A fox screamed in the night.
A fox screamed in the night. ✓
- 5 A full moon glowed in the night sky.
Our full moon glowed in the night sky.
A full moon glowed in the night sky. ✓
- 6 The leaves had started to turn brown.
The leaves had started to turn brown. ✓
- 7 John ran quickly down the road.
John ran quickly down the road. ✓
- 8 Her face was as white as snow.
Her face was as white as snow. ✓
- 9 The sheep gathered in a flock.
This sheep gathered and a flock.
This sheep gathered enough lock.
- 10 A strong wind blew down the tree.
A strong wind blew down the tree. ✓

Student 5

D is a very personable young man who can lack confidence in his abilities. He has attended the support for learning department regularly throughout S4 and has asked for this to continue in to S5. D completed the Dyslexia Screening Test in S3 which was inconclusive. However the test and accompanying research indicated that he does have difficulty with writing, spelling, processing, organisation and time management. He benefits from the use of ICT to support these areas. D is slow to process information and can find it difficult to get his work down on paper at times. His handwriting can become completely illegible when he is under pressure and his spelling can also deteriorate. D has an allocated 'Netbook' to support his writing although he usually uses it more for longer pieces of writing, preferring to hand write if it is note taking or short class tasks. D's access to ICT in the home is inconsistent. The use of a combination of ICT, digital papers and a reader and a scribe along with extra time was requested and facilitated for D in his S4 SQA exams which he found beneficial.

In terms of school work, as outlined above, D has difficulty with writing and spelling and his handwriting can become illegible when he is faced with time constraints. He likes to word process any longer written pieces, for example essays. D found the Dragon software helpful and he really enjoyed using it. However when it came to the crunch, he found that he was not quite as quick as he would have liked at using it and he felt that typing using spellchecker was more effective. Due to constraints with staffing and timetabling etc, D did not manage to get a consistent weekly session using the software. However, with more sessions using the software his writing rate may very possibly increase. It was certainly felt that Voice Recognition could be another potential option for candidates in their SQA exams. Finally, D was keen to persevere with using the software to try and increase his fluency of writing using Dragon as he could definitely appreciate the potential benefits of using it.

Unfortunately, the Dragon Software was installed on one PC in the Support for Learning department which meant that it could not be used in different classes. However with previous versions of Dragon which we had installed on a laptop, staff and pupils encountered difficulties as a result of the layout and 'build' of the school. All rooms in the school are connected by an open void in the ceiling space which means that noise travels from room to room which affected the Dragon Software. This was the same for the varying acoustics of different rooms around the school. In hindsight it would have been better for the trial to have the software on a laptop/netbook to see if the same issues occurred. Another potential difficulty would be the practicality of using Dragon in classes. This could potentially cause disruption for other students in the class and also most classes are not consistently quiet enough to facilitate using the software. It may be that pupils could come to SfL to use the software out of their class however this would have an impact on staffing and room availability in the SfL department.

Student 6

Name : JC

Age/Year : S4

Additional need; dyslexic, slight hand tremor affecting fine motor skills.

J was home schooled for approximately two and a half years (P3-4). He had a diagnosis of dyslexia. There was a marked discrepancy between his literacy skills and his intellectual level. His handwriting was very poor and he found using a PC to type up his work difficult. His reading and spelling were very poor when he first attended High School. He was unable to use a PC to help with his work despite input from ICT specialist. He had also trialled weighted pencils, weighted wrist supports- did not appear to make a difference, although he did prefer to use a 'heavier' pen when writing.

He found it incredibly difficult to copy notes from a board- unable to read the words, unable to remember the letters in the correct order- notes were therefore extremely jumbled and illegible.

J required/relied on a reader/scribe for all written work/assessments/exams. He also had 25% extra time in assessments and exams.

Verbally- excellent. Articulate, able to understand and conceptualise. Good ideas, confident in expressing the verbally. He preferred practical subjects.

Strategies which he identified as helping him were: IVONA minireader, a reader/scribe, a paper copy of notes.

J was very dependent on the support of others for any reading/writing.

Use of Dragon- initially J was very impressed. (He had trialled earlier versions of Dragon.) It did not take long to 'train' and during training sessions it was very successful. He was keen to use the software as it would allow him to be much more independent. J attempted to use it in classes - mainly in his English class, with varying degrees of success. The laptop that the software was installed on proved to be slow when setting up in class and did not always work. This proved to be very frustrating for both J and his class teacher.

J's mother was very keen for him to participate in the project as he had trialled earlier versions of Dragon, but without much success. J was also keen to purchase the software for his home computer.

J did not use Dragon for assessment/exams. He has now left school after successfully obtaining a place at College to study Horticulture and Landscaping. (He is very entrepreneurial, and had set up his own gardening business last summer. He was responsible for his own business cards/flyers/accounts/contacting customers - phone, email etc.)

I am sure had the laptop been of a higher specification and the software was able to work as it should, J would have preferred to use this as his way of working rather than relying so much on the support of others.

Student 7

MB is an S1 pupil who transferred to this school at the end of February this session.

M has quite significant barriers to learning, particularly dyslexia. He also has a variety of social and emotional needs and has very low self-esteem. It became quite clear early on that M would not be able to properly access the curriculum unless it was adapted for him. His written work was very poor and he was extremely reluctant to answer out or speak out in class. During the transition meeting with his parents, his mum expressed real concerns about his motivation to learn and his self-confidence in general. He tended to get very upset in class if he was asked to read aloud and did not like anyone drawing attention to him.

M became part of the ICT group, which meets with me every Tuesday afternoon. He quickly built up a profile on his assigned PC and was able to complete written assignments in English, within a short space of time. M is a very articulate pupil with good ideas and a great imagination and he soon realised that he was able to commit these ideas to paper, via dragon software. This has really increased his self-confidence as he is now able to use the software for homework, powerpoints, extended pieces of writing, etc.

Staff know to send him to the ASN base to complete pieces of work using the software and M now has the confidence to ask staff if he can come to the base, whenever appropriate. He has a sense of independence with his class work and can see that there are other pupils in school just like him, who need an extra level of support. His mum has visited the base to see M working on dragon and has recently purchased the software for her own laptop at home.

M showcased his abilities on dragon software at the North Lanarkshire Learning Festival in May and accompanied me to the CALL Scotland seminar earlier this month. His self-esteem has also increased as a result of these visits as he feels that he is "good" at something and that others want to learn from him.

His parents are delighted at the progress he has made since March this session and they too feel that dragon software has been the "key that has helped to unlock M's real abilities".

Student 8

Case Study: ME

M had chosen five heavily language-loaded Nat 5 subjects for S4, and due to his dyspraxia, as well as his significant organisational difficulties, my PT felt he would be an ideal candidate for the Talking in Exams project. And so he proved to be.

Barring illness or curricular commitments, M attended Dragon training once a week, beginning August 2015. (The agreement had been made that he would be extracted from his Universal Studies class).

Right away, M proved to be a willing and enthusiastic participant. After a few sessions with my input, and although still under my supervision, he continued more or less on his own. He very quickly mastered the various commands and developed his own way of using the software, adapting it to suit his needs. He needed very little direction from me, and really, the regular sessions just allowed him to get on with building up his profile and developing his vocabulary.

Once it was clear that this was indeed proving to be a very suitable arrangement for M, I contacted his teachers and asked that they consider allowing him to complete class assessments/assignments using Dragon. All were very supportive and happily contacted me to make the necessary arrangements when required.

So comfortable did M feel using Dragon, that he was happy to use the software for his five prelims. He was very pleased with the results (four As and one B) and consequently the arrangements were made for M's to use Dragon in his final exams. During the interim period, he worked more specifically on recognition of the kinds of Scottish words he would potentially use in his English Nat 5 exam.

As he said at the feedback event, M feels he has benefited greatly from using Dragon. Previously his written work was such that he had to rely on a scribe or computer, and while he is fairly proficient on the keyboard, he finds speech recognition so much quicker, allowing his thoughts to flow, and consequently give lengthier, much more detailed answers. He particularly noted the benefits, for example, in the Modern Studies exam, where he could quote extensively and seamlessly from the sources in the Enquiry Skills section of the paper.

The only slight concerns were the time it took to save. With regular saving encouraged, it did eat a little into his overall time, though the lady from SQA did suggest this problem could be overcome with 33.3% extra time rather than 25%, and this is something we will consider in future. Furthermore, this extra time would be useful for correcting recognition errors.

M certainly hopes to continue using Dragon in S5 when he will study English and History at Higher level. Indeed, he would feel disadvantaged in these subjects if he were unable to use Dragon.

He is happy to share his experiences with younger students, and hopefully, if the school purchases a site licence, he will be able to inspire many others to follow in his footsteps.

Student 9

MR, S2

M is a sensitive, friendly and artistic pupil who tries hard at school. He has dyslexia, affecting all areas of literacy and numeracy. He is an emergent reader and he finds reading academy text books extremely difficult. He requires support across every area of the curriculum and he requires extra time for all tasks. He has some short term memory difficulties and benefits from tasks being broken down into manageable chunks, the reinforcement of instructions, overlearning and consolidation. M can have difficulty concentrating, especially if he finds the task a challenge.

M also has motor difficulties which affect handwriting. He can copy notes from the board very slowly. He is encouraged to use a PC with a spellchecker/Read Write Gold, although the spellchecker does not always recognize M's spelling and he does not always choose the correct spelling of a word. For this reason speech to text software (DRAGON Dictation, located in the learning centre) or a scribe has been recommended for longer pieces of written work. M has to put a lot of thought and effort into his day.

Before Dragon, M would have most of his work scribed for him as his spelling was such that it was very difficult to decipher almost all of his words. There is no consistency to his spelling errors and it made progress slow due to the extra time needed to translate anything he had written himself.

The laptop which has the software is kept in the learning centre and M is in the Learning Centre two periods a week. For one of these periods the focus was familiarisation of Dragon. He would use Dragon for a variety of tasks, mostly set by the ASL teacher but on occasion for pieces of work for specific subjects. English was the most common one.

Teachers were informed that the software was in the school and to encourage M to use it as he could access the laptop at any time during the week but this did not happen often and I think that work needs to be done with the subject teachers to highlight the benefits of Dragon.

For M, in particular, Dragon is most successful if the work he is producing has been drafted previously as M's ability to process information quickly enough and with enough sense hinders the process.

M has produced a variety of work using Dragon including power point presentations. For M it has been an enormous boost to his confidence as he is able to hand in work that is legible and articulate. At the moment I do not expect M to use Dragon in exams but certainly for unit assessments and folio work.

Student 10

S (S1 pupil) is both dyslexic and dysgraphic, as a result he finds handwriting difficult. He tires very easily and this results in time off school which affects his progress in class. In order to minimise writing demands, S uses IT to type answers and record homework. The support teacher involved was looking at other ways for S to record work and Dragon speak was suggested. We tried to run the software on school laptop but it proved difficult to use and didn't appear to be compatible with our machine. Our IT technician was also unable to get the software to work. S felt more confident to continue using his own computer or a scribe to record written work.

Furthermore, as a school we are still at the stage of embedding text to speech technology. We feel that next session we will be ready to add speech recognition software to our use of assistive technologies.

Student testimonies (written using Dragon software)

“Dragon is easy to use because the toolbar does not get in your way when you’re trying to speak. It is accurate most of the time and it does help with a lot of subjects like English, Social Subjects and Science.

Dragon has helped me improve my spelling. I struggled with this before but Dragon has helped me not to be afraid of spelling errors, it has taken barriers away.”

“Dragons helped me so much since I started using it.

Ever since joining the school Dragon has helped me get through all my work and helped me to do the best I can.

It is so easy to use I’ve taken to it so well. When I first started at the school I did not know what Dragon was. Dragon has helped me with spelling and vocabulary.”

Troubleshooting/Questions

A common question asked in the initial stages of the project was:

"I am unable to get the Dragon to work. It has been set up for a number of pupils and we have got their profile all ready to go and has been working to date.

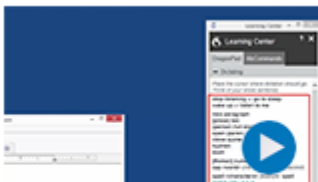
However, when we tried this morning it just kept asking pupil to 'say that again'. In case it was the pupil, I switched to my profile and the same happened. We checked microphone was all in place and have checked the microphone works through reading text. Any advice?"

Advice given was to:

- Check the microphone in Audio > check microphone
- Is there a mute button on the microphone/headset that has been accidentally switched on
- Try another USB port for the microphone/headset
- Close down the software and the computer. Re-start and try again.

Participants were directed to the CALL website and the support resources for Dragon.

Demo videos for each stage of the software set-up and use can be found at <http://www.nuance.com/for-individuals/by-product/dragon-for-pc/how-to-demos/index.htm>



DragonBar & Learning Center

Dragon 13 features a contemporary, intuitive interface and helpful tutorials that make using it easier than ever before. Boost your productivity even further by exploring advanced features with the easy-to-use Learning Center, which displays relevant help at your fingertips. [Watch video](#)



Edit, Format & Correct Text with Voice Commands

Use many of the voice commands in Dragon 13 to modify your text, edit or replace text, or format text such as bold and underline. It's easy to create and edit documents all by voice using Dragon. [Watch video](#)

Tips from teachers

- Create a Dragon Training Group....." I bought a bumper book of stickers from the animation How To Train Your Dragon, so each pupil could have their own dragon and name them! They each have a folder and all their work is kept there. They get dragon stickers for each piece of work and they can have a copy to take home, so they can show what they have been doing. Emails were sent out to all parents with details of the project" *L.F.*
- I have completed 2 staff CPD session and have given training to 2 SFL teachers in other schools. There are 2 timetabled sessions per week to train pupils with Dragon. I have suggested use as support strategy for 2 new S1 pupils and their parents happy with this approach. Dragon is a fantastic resource. *L.R.*
- If Dragon crashed you would only lose what it was currently trying to transcribe but a backup would be to have a digital recorder running close to the student to capture what they have dictated. This has the additional advantage of providing a means of checking whether a student dictated all of the material within the assessment. *C.G*



Acknowledgements

CALL Scotland would like to say a very big thank all the participants in the Talking in Exams project for agreeing to be part of the study, and to the 70 students who trialled the software. We appreciate your support in our research and our overall goal of finding ways to provide assistive technology that allows students with additional support needs to meet their full potential.

The use of Dragon Naturally Speaking software – and other assistive software – in SQA assessments and exams is likely to increase and reliance on human scribes and readers will become less prevalent. Students require teaching and instruction to learn the skills required to use the software. Levels of teacher competence and confidence to support the use of the technology vary but professional learning opportunities exist to ensure all staff can upskill to support their students.

CALL Scotland offers Professional Learning in use of speech recognition and other assistive technologies:

<http://www.callscotland.org.uk/professional-learning/>

We are committed to providing support and can be contacted with any questions at any time:



Email Us

Need advice? Want to ask about training?
Got a query? Drop us an email.

call.scotland@ed.ac.uk



Call Us

If you prefer a friendly voice, why not
phone us?

UK: 0131 651 6235

International: +44 131 651 6235



Send a letter

CALL Scotland
University of Edinburgh
Moray House
Paterson's Land
Holyrood Road
Edinburgh
EH8 8AQ









Further Information

Full information on the CALL Scotland website [Getting started with speech recognition](#)

Information on [other speech recognition software/app](#) options are on the CALL Scotland website.

What's available...

 <p>Dragon NaturallySpeaking Windows Speech Recognition software.</p>	 <p>Siri Intelligent personal assistant on the iPad.</p>	 <p>Android Google Voice Typing is Android's version of speech recognition.</p>
 <p>Google Now Digital personal assistant.</p>	 <p>Windows Speech Recognition Built into Windows 7 and above.</p>	 <p>WordQ + SpeakQ For people who have literacy difficulties.</p>

[Evaluation for Potential Use of Speech Recognition](#) – Criteria and Evaluation form for student's potential use of Speech Recognition

[Speech Recognition as AT for Writing](#) – a publication by Daniel Cochrane and Kelly Key which can be used as a structure for teaching learners to use speech recognition

- [Dragon 13 Quick Start](#);
- [Dragon 13 User Guide](#)
- [Dragon 13 Cheat Sheet](#)

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Nuance Dragon
@DragonTweets



CALL Scotland
@CALLScotland

Appendix A: Talking in Exams Participant Agreement

Talking in Exams Participant Agreement

Name: _____

Designation: _____

School: _____

I acknowledge receipt of computer media with Dragon Naturally Speaking Pro 13 and agree to install the software on **one** computer only for use by multiple students.

The computer will meet the following minimum requirements:

- RAM: 2 GB for 32-bit Windows 7, Windows 8 and 8.1, 4 GB for 64-bit Windows 7, 8 and 8.1;
- Processor: 1.8 GHz Intel® dual core or equivalent AMD processor.
- Cache: 2 MB L2 cache. (Minimum: 512 KB)
- Free hard disc space: 4 GB.

I acknowledge receipt of one Andrea NC 181 USB microphone headset.

I will not pass on the software or license key to any third party.

Signed: _____

Appendix B: Talking in Exams Student Record



Talking in Exams Student Record

Student: _____

Year: _____

Support needs arise from (tick all that apply):

ASD	<input type="checkbox"/>	Specific Learning Difficulty/Dyslexia	<input type="checkbox"/>	Learning difficulty	<input type="checkbox"/>
Physical disability	<input type="checkbox"/>	Visual Impairment	<input type="checkbox"/>	Speech or language difficulty	<input type="checkbox"/>
Dyspraxia	<input type="checkbox"/>	Hearing Impairment	<input type="checkbox"/>	Other (please specify)	<input type="checkbox"/>

	Poor				Excellent
Current quality of handwritten work	1	2	3	4	5
Current quality of typed work	1	2	3	4	5
Reading level/ability	1	2	3	4	5
Reading age or standardised score (if known)					
Quality of speech (clarity, diction)	1	2	3	4	5
Ability to express ideas verbally	1	2	3	4	5
ICT skills	1	2	3	4	5
Motivation to use speech recognition	1	2	3	4	5

	Poor				Excellent
Skills in using Dragon software	1	2	3	4	5
Self esteem without Dragon	1	2	3	4	5
Self esteem with work output from Dragon	1	2	3	4	5

Number of times per week student uses Dragon?			
Key advantages for the student			
Class teachers on board with the use of speech recognition software?	All	Some	None
Is it likely that this student could use speech recognition software in an exam setting?	Yes	Maybe	No
Problems/issues/Any other comments?			

Appendix C: Identifying which Students might benefit from Speech Recognition

Speech recognition is not magic and it requires skill across language, literacy and ICT. We recommended Bridgette Nicholson's [Evaluation for Potential Use of Speech Recognition](#) tool to consider whether it was right for the learner. This is from the Quality Indicators for Assistive Technology (QIAT) resource bank and it is a reproducible form.

1	2	3	1=Yes/Good 2=Developing 3=No/Poor	1	2	3	1=Yes/Good 2=Developing 3=No/Poor
<u>Work habits / behavioral:</u>				<u>Basic computer skills:</u>			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Frustration tolerance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Open and close programs+
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Attention to detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manage windows - move from one window to next
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Patience, perseverance, persistence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Can use mouse
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emotional consistency & control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Copy, paste from one program to another
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	May be willing to use computer for writing if experiencing greater degree of success using speech recognition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	File management - open, create, save
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Motivated / willing to use computer for generating ideas and putting them down in written form	<u>Consistency of speech:</u>			
<u>Cognitive skills:</u>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pronunciation & speech patterns
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Self-monitoring and self-correction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intelligible articulation, voice quality & motor planning
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concentration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Voice quality
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Memory	<u>Language:</u>			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Thought organization,
<u>Reading & Writing:</u>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Retain thoughts and ideas
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	At least 3rd grade reading level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Planning
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Word recognition for error recognition / omissions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Formulate ideas and verbalize
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visually able to find corrections in list of 5 - 10 alternatives	<u>Support and Training:</u>			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Basic knowledge of grammar rules, punctuation, sentence and paragraph construction	Who is available to provide support and training? Include educational team, parents and others:			
<u>Grade levels:</u>							
Reading:							
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>							
(3rd grade reading preferable)							
Written spelling:							
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>							
Oral spelling:							
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>							
Notes:							

Another recommendation was to try to the procedure outlined in [Speech Recognition as AT for Writing](#) by Daniel Cochrane and Kelly Key. This is another QIAT resource.

1. **Consider It!** - Is SR an appropriate tool for the student and the learning tasks?
Not every student can use SR, and you can't necessarily use it for every learning task.
2. **Try It!** - SR is not magic. You must teach the student to use SR, and to compose and dictate.
3. **Assess It!** - What does SR offer compared to handwriting, typing or other writing tools?
4. **Implement It!** - If SR looks like it is a viable tool, how can it be introduced into class and at home?

Project Talking in Exams

Pupil initials:

Date:

Time taken: _____

Writing samples	Total words written	Correctly spelled words	Multisyllable words (5)	Words per sentences	Characters per word	Legibility per word by unfamiliar reader	Complex sentences (2 or more verbs) (%)	Writing completed independently (1%)	Reading level (see below)
Handwriting									
Typing (no other supports)									
Typing (with typically used supports)									
Transcription (if used now)									
Speech recognition software	%								
Other									

[From Cavanagh C. (2009) Speech Recognition Trial Protocol. In Closing the Gap, December 2008/January 2009; pp: 8-11.]

Appendix D: Talking in Exams Feedback Form



Talking in Exams Project: Feedback form

Your Name _____

School _____

Talking in Exams student records	I enclose a minimum of 2 Student Records: YES/NO
	I have previously submitted Student Records: YES/NO
	I have not submitted Student Records because:
Case study	I enclose a Case Study for: Name Age/Year
Dragon Naturally Speaking in SQA Examinations and	This guidance is clear YES /NO

Assessments: Briefing Note	I would like more information about:
Summary Comments	<p>Please feedback your thoughts on taking part in the project:</p> <p>What was helpful?</p> <p>What was not helpful?</p> <p>What are your next steps?</p> <p>What support do you require to implement use of speech recognition in future?</p>

Please return this form, the Student Evaluation forms and your Case study in the Freepost envelope by June 28th, 2016. Many thanks.

Appendix E: 10 Golden Rules for Speech Recognition

It is very important to get into a good 'rhythm' of dictation as quickly as possible. When you first start dictating, the routine is:

1. Sit up straight and make sure you can breathe properly, so you can speak clearly.
2. Make sure the microphone is switched off.
3. Compose and practise a sentence.
4. Switch the microphone on.
5. Don't mutter, breathe deeply, sigh, sniff, say 'ummm', 'er', etc before you start the sentence – the computer will pick these up.
6. Speak the phrase or sentence clearly, with punctuation, using a 'dictating voice'. Speak slightly more slowly and carefully than you would for conversation. Avoid running words together, or letting your voice tail off at the ends of words and sentences.
7. Wait silently until the words appear on screen – don't say 'Ooh look it's great/rubbish'/'What's it doing now etc' – it will pick this up.
8. Switch the microphone off.
9. Use text to speech features to proofread your sentence and correct any errors.
10. If there is a playback facility use it to listen to how you spoke any misrecognised text. This will help you adjust how you dictate to the computer to get the best results.

Once accuracy and confidence improves, you can dictate a paragraph or two before stopping to correct mistakes, but to begin with, you should correct each sentence as soon as it is dictated.

Appendix F: How to Train Your Dragon

Commands or words that you say are in **BOLD CAPITALS**.

1. Create a voice profile

- Plug in the microphone.
- Double click on Dragon NaturallySpeaking.
- Click **New**.
- Follow the instructions to create your voice profile.

2. Try your first dictation

- Click **Dragon Tools > DragonPad** or say **OPEN DRAGONPAD**.
- Use the Dragon Routine (mic off, think, compose, mic on, speak, use punctuation, mic off, repeat).
- Dictate a few sentences - read from a book if you can't think of anything to say.
- Use Punctuation, e.g. comma, full stop.
- Say **NEW LINE** and **NEW PARAGRAPH** to separate your text.

3. Correct errors

- Say **CORRECT XYZ** if Dragon gets it wrong (xyz is the word which is wrong).
- Say **PLAYBACK** to check how you spoke the word.
- Put the cursor at the start of the text and then either say **PLAYBACK** or click **Audio > Playback**. Can you hear any words that you ran together, or words that were just not clear?

4. Set up the hot keys

- Click **Dragon Tools > Options > Hot Keys**.
- Choose suitable keys to switch the microphone on and off and for Correction.

5. Use your voice to search the web

- **SEARCH THE WEB FOR... NATIONAL 5 PHYSICS; PANCAKE RECIPES;**
- **WHO IS TAYLOR SWIFT?**
- **WHAT'S THE TIME IN BUDAPEST?**
- **WHAT'S THE TEMPERATURE IN AVIEMORE?**
- **IS IT RAINING IN KILMARNOCK?**
- **WHAT IS THE SQUARE ROOT OF 78?**

6. Command your Dragon!

Use Dragon to control your computer:

- **SHOW DESKTOP**

- SWITCH TO DRAGONPAD
- SWITCH TO GOOGLE CHROME/INTERNET EXPLORER/FACEBOOK/POWERPOINT/WORD/ETC
- SWITCH TO MICROSOFT WORD
- DICTATE A SENTENCE.
- SELECT ALL
- SET FONT 24; SET FONT TO 24; SET FONT TO ITALICS; SET FONT TO TIIMES; SET FONT COLOUR TO RED; ETC
- UNDO THAT (IF IT GETS ANYTHING WRONG)
- CLICK INSERT
- CLICK PICTURE
- SAMPLE PICTURE
- CLICK DESERT
- CLICK INSERT
- CLICK WORDART – CHOOSE YOUR STYLE – THEN DICTATE A CAPTION FOR THE DESERT PICTURE.
- SAVE FILE

7. Force dictation or commands

- Dragon decides whether you are giving a command or dictating text by listening to the pause between the words of the command. e.g. Say **OPEN** <pause> **FILE** and it will type the text; say **OPEN FILE** with the words together and it will obey the command. Say **FULL** <pause> **STOP**, then say **FULLSTOP**.
- Sometimes Dragon performs a command instead of typing, which can be annoying, especially if it sends an email while you are in the middle of dictating. To avoid this, hold down the **Shift** key while you speak. Hold the Shift key down and then say **CLICK INSERT** and it should type it.
- If you want to force a command, hold down the **CTRL** key while you speak, e.g. **OPEN FILE**.

8. Dictate numbers

- ONE, TWO
- NUMERAL ONE; NUMERAL TWO
- SIXTEEN POUNDS FIFTY
- FIVE MILLION TWO THOUSAND AND FIFTY SIX
- FORTY FIVE CENTIMETERS
- NINETY SIX KILOGRAMS.

9. Read back your dictated text

You can read back your dictated text with Dragon, or with any other computer text reader.

Dragon 'Read That'

Dictate some text or select some text and say **READ THAT**. Dragon Read That is built in to Dragon but it does not work with the Scottish Computer Voices, so if you want Scottish voices you will have to use a different text reader, such as:

WordTalk

- **SWITCH TO WORD**
- **CLICK ADD-INS.**
- Dictate a sentence.
- Click the yellow **S** button to read the sentence back.
- Repeat a few times.
- Click **W** to read a word, **P** to read a paragraph.
- You can set up WordTalk to work by voice: click the **Spanner** button then **Keys** and **Keyboard Shortcuts**, then tick it.
- Dictate a sentence; then say **ALT 3** and it will read it back.
- See below for creating macros to control WordTalk and MiniReader by voice.

10. Dictate into PowerPoint

Creating a PowerPoint is often more motivating than writing text because each slide can have images and generally less text is required.

- **Open Microsoft PowerPoint**
- Use Dragon to dictate text into the slides

13. Train words and teach Dragon new words

- If you are going to use technical or subject specific words, it helps to train Dragon to understand how you pronounce them.
- To train a word, say **TRAIN WORD** then dictate the word. Say **CLICK DONE** to control the buttons.
- Try training words or phrases such as:
depreciation, Mark-Up Ratio, Joules, Ohms, electromagnetic, Caryophyllene, Carboxyl,
etc
- If you find that Dragon doesn't know a word, click **Dragon Vocabulary > Add new word or phrase**.
- Type the word you want to add and tick **I want to train the pronunciation of this word or phrase**. Click **Add**.
- Record how you say the word.

- Try it: dictate: **I dinnae want to do that** and then add and train the word dinnae.
- **Dragon Vocabulary > Open Vocabulary Editor.**
- Type a few unusual words and see if Dragon knows them - try and find words or phrases it doesn't know, e.g. Sepp Blatter. Click Add and go through the process to add the new word or phrase.
- Try dictating it.

14. Teach new words from a document

- **Dragon Vocabulary > Learn from specific documents.**
- If you just want to add new words, tick **Find Unknown words** and don't tick **Adapt to writing style**.
- If you are going to use a document that you have written yourself, tick **Adapt to writing style**.
- Find and open a document on your chosen topic.
- Click **Next**. Click **Uncheck All** then scroll through the list and tick the words you need to add.
- Finish the process and try dictating with these words.

15. Train Dragon a bit more

- **Dragon Audio > Read Text to Improve Accuracy**
- You can print out the training text, or copy and paste it into Word and change the font/size to make it easier to read.
- Read for 5 minutes then stop it.

16. Program voice command to read back your text

You can program your own voice commands into Dragon. Here we'll add a voice command to make WordTalk read back the current sentence.

- **Dragon Tools > Add new command**
- In MyCommand Name type **Speak Sentence**
- In Command Type, choose **Step-by-Step**
- Click **Insert** and then press **Alt+3** (this is the short cut for telling Wordtalk to speak the current sentence)
- Click **Save**
- Try it out in Word.
- Add more commands for Speak Paragraph, Speak Word etc as you wish.
- If you want to use MiniReader, create a Voice Command to **Speak Text** by programming the keys CTRL+SHIFT+SPACE.

Appendix G: Dragon NaturallySpeaking and Digital Question Papers Quick Guide

With Dragon 13 Premium and Pro you can use voice to navigate around the paper, dictate directly into answer boxes, and ‘tick’ multiple choices.

Dictating directly into a Question Paper

There are two ways to dictate into a Digital Question Paper answer box – either directly, or via the Dictation Box. To dictate directly, first go to **Options > Miscellaneous** and untick **Use the Dictation Box for Unsupported applications**.

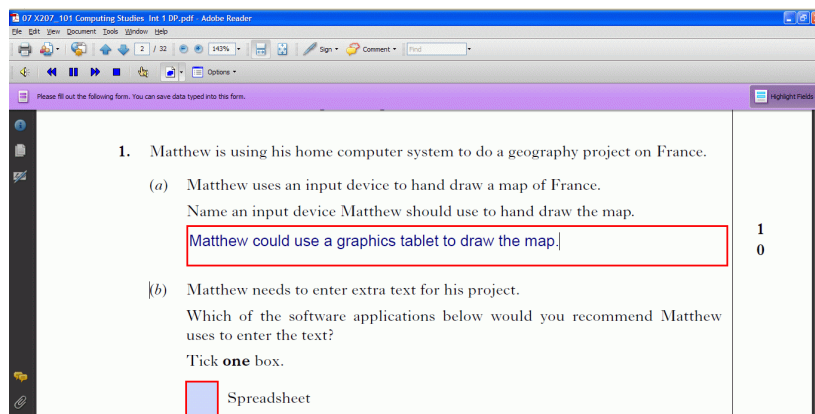


Figure 11: Dictating directly into an answer box

Click in the text box to place the cursor and then dictate your answer. Dictating directly is easy and straightforward, but you can't correct recognition errors or use the Play Back or Read That tools.

Using the Dictation Box

As an alternative to dictating directly into the answer boxes, you can dictate into Dragon's Dictation Box (say *Show Dictation Box* or press CTRL-SHIFT-D) and then transfer the dictated text to the answer box. The advantage of this is that mis-recognitions can be corrected and you can always use the Read Back and Play Back tools to check the dictated text.

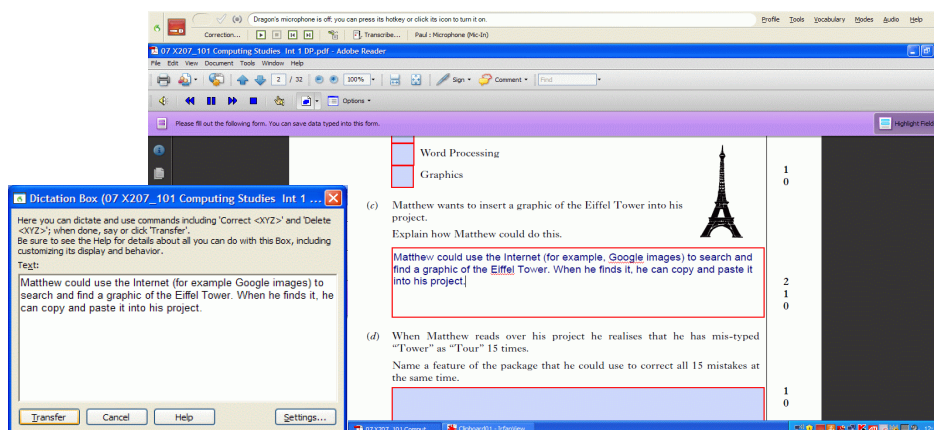


Figure 12: Dictating via the Dictation Box

The disadvantage of the Dictation Box is that it takes up screen space and may obscure the question paper. We found it best to choose the 'Anchor' setting and then position the Dictation Box in the corner of the screen otherwise it would follow the cursor and cover up part of the question.

You can change the font and size in the Dictation Box using the Settings button.

Dragon Commands

Here are some common commands that you should find useful.

Operation	Say...
Read out your dictated text with Ivona Minireader, so that you can check it	Select the text ("Select all") then say "Press Control Shift Space"
Read out your dictated text with NaturalReader, so that you can check it	Select the text ("Select all") then say "Press Control F9"
Correct recognition errors (only in Dictation Box)	"Correct That" or press the Correction Box hot key.
Play back what you said (only in Dictation Box)	"Select <word or phrase>" and then "Play That Back".
Read out your dictated text with Dragon, so that you can check it (only in Dictation Box)	"Select <word or phrase>" and then "Read That"
Move to the next answer box	"Press Tab" or "Tab"
Move to the previous answer box	"Press Shift Tab"
'Tick' or 'untick' a multiple choice	"Enter"/"Press Enter"/"Space"/"Press Space"
Move the page up/down one screen	"Page Up"/"Page Down"
Move the cursor up or down on the DQP	"Move up one line"/"Move down one line"
Scroll up or down	"Start Scrolling up" or "Start Scrolling down"
Stop scrolling	"Stop Scrolling"
Go to first/last page	"Move to top"/"Move to bottom"
Swap between Microsoft Word DAB and Adobe Reader DQP	"Switch to Microsoft Word"/"Switch to Adobe Reader"
Copy text (e.g. from the DQP)	Select the text and say "Copy That"
Paste text (e.g. into a Word DAB)	"Paste that"

Find out more

Visit CALL's Speech Recognition web pages to find out more about using Speech Recognition in exams and assessments, including suppliers and costs for Dragon, and manuals, how-to videos and tutorials.

<http://www.callscotland.org.uk/information/speech-recognition/>

Visit CALL's Digital Exams and Assessment website to find out more about Digital Exams and assessments:

<http://www.adapteddigitalexams.org.uk/Home/>

Appendix H: Speech Recognition Software in SQA Examinations and Assessments (draft)

Introduction

The use of speech recognition software in SQA's internal and external assessments is regarded as an [assessment arrangement](#) and as such any centre requesting its use for a candidate must follow SQA's principles. The software can be used by candidates who are disabled, and/or who have been identified as having additional support needs.



Speech recognition in examinations and assessments

Speech recognition can be a suitable assessment arrangement for learners with writing or spelling difficulties, visual impairment, or physical disability. However, candidates must be confident, competent users of the technology before it is used in an assessment or examination.

Can speech recognition be used in any examination?

Speech recognition can be used in all examinations and assessments (including [National 3 and 4 Literacy](#) units and National courses in English) apart from assessment of writing in Modern Languages and Gaelic (Learners). In these assessments, it is 'the overall quality of the written language, including spelling accuracy that is being assessed' and therefore use of speech recognition (which never makes spelling mistakes) would compromise the integrity of the assessment.

Requesting an assessment arrangement to use speech recognition in an exam

Where a candidate is using speech recognition software along with the conventional question paper in the external examination, centres should request this using the SQA Assessment Arrangements Request (AAR) system. Centres should select the '**Use of ICT**' option and insert more information in the 'Other' field, for example, 'Dragon NaturallySpeaking' and/or text reader.

Where a candidate is using speech recognition software along with a digital question paper, centres should select the **Digital Question Paper** option and insert more information in the 'Other' field, for example, 'Dragon NaturallySpeaking' and/or Text reader.

There is no need to ask permission from SQA to use speech recognition in internal assessments.

Security

SQA's policy on the use of ICT in an examination requires that the candidate should not be able to access the internet or the school network, files on the computer, or any other digital data that might provide assistance in the examination. Communication ports and mechanisms such as CD/DVD drives, Wi-Fi and Bluetooth should not be available to the candidate. USB ports can be made accessible for keyboards, mice and USB sticks — memory sticks must be checked by the centre to ensure they are blank before use.

In an exam, candidates can either use their normal laptop or tablet that is used daily in school, or a 'clean' device with no stored files, provided by the centre.

If the candidate's normal laptop or device is used in the exam it should be configured and checked by centre staff to ensure that it is secure and that files cannot be accessed by the candidate. This can be done by first creating a new Windows User Profile and importing the student's Dragon Profile, and then securing and password-protecting the original Windows User Profile so it cannot be accessed during the exam.

If a 'clean' laptop or device is being used, the candidate's voice profile should be saved from their usual laptop and imported into the centre laptop. This is because the voice profile will have been developed and refined over time and will be more accurate and include specific vocabulary required for the examination.

SQA recommend that the candidate's normal computer should be used for the examination or assessment. While it is technically possible to export and import voice profiles, this increases the risk of technical problems and could add significant anxiety for the candidate (and for centre staff). Also, centres require sufficient licences to install the speech recognition software on the clean centre laptop, and to install and test it on the machine.

Regardless of which approach you take, the speech recognition system must be checked by the candidate before it is used in the examination. You must also ensure that the required technical resources are available and that SQA's technical and security requirements have been met. Please refer to the SQA Co-ordinator's Guide on SQA Connect.

Macros and abbreviations

With some speech recognition software, phrases or passages of text can be stored under abbreviations or macros. Therefore the centre must check that macros or abbreviations are not stored in the candidate's speech recognition voice profile.

Spellchecker

It is not necessary to disable any spellcheckers as speech recognition does not make spelling mistakes.

Correction of speech recognition errors

Speech recognition is never 100% accurate, and so there will always be some degree of misrecognition of the text dictated by the candidate. Some candidates can identify and correct misrecognitions, but other candidates with literacy or visual impairments may have difficulty. Candidates can use text-to-speech software to read out the dictated text, and this may help to proof read and check responses. However, it may be that a member of staff will need to be available to support the candidate to identify and correct recognition errors. The way in which this will be carried out, based on the individual needs of the candidate, must be discussed and agreed with the [Assessment Arrangements Team](#) in advance of the assessment.

Extra time

While speech recognition is usually a much faster method of generating text than typing or handwriting, it still requires the candidate to read and interpret questions and plan and compose answers. In addition, the candidate may require time to proof read and correct recognition errors.

Therefore, the use of extra time should be considered following the standard SQA assessment arrangement principles.

Separate accommodation

Separate accommodation should be requested in order to prevent the candidate's spoken answers being overheard by other candidates.

CALL Scotland has some excellent advice on speech recognition software.

www.callscotland.org.uk/information/speech-recognition



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