

Equality of opportunity for all? Accommodations in national assessments in England

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Abstract

Accommodations (known as access arrangements in England) are changes to the administration of an assessment that increase accessibility by removing construct irrelevant variance. They are intended to 'level the playing field' without changing the construct being assessed or altering the demand of the assessment. Some accommodations, such as test papers in braille or large print, are widely accepted; others, such as the provision of additional time, are more controversial.

In contrast to the United States, where research into assessment accommodations is well-established, in England there is very little published research. There are, however, documented procedures for the use of access arrangements in the high stakes national assessments. This presentation will outline the position with regard to national assessments and report on recent projects undertaken into various aspects of these access arrangements in England, including teachers' perceptions of the validity of the process.

Introduction

Access arrangement is the term used to describe some form of adjustment to an assessment or its delivery that is intended to increase access to the assessment. The term is used in relation to both public examinations (eg GCSE and A-level) and national curriculum assessments in England. The two organisations responsible for the conduct of assessments in England describe the purpose of access arrangements thus:

A small number of pupils may require additional arrangements to access the tests. The access arrangements must never provide an unfair advantage, the support given must not change the test questions and the answers must be the pupil's own. (QCA 2007, p58).

Access Arrangements are intended to increase access to assessments but cannot be granted where they will directly affect performance in the skills that are the focus of the assessment. (JCQ 2007, p1).

In technical terms, therefore, the organisations which oversee the use of access arrangements in England are indicating that the use of such arrangements is valid if they do not affect the construct being assessed and retain construct representation but remove, as far as possible, construct irrelevant variance.

The national curriculum assessment system in England

For more than a decade, a national assessment system has operated in England. At three points in their compulsory education, students must undertake mandatory tests and tasks, designed to measure their knowledge and skills in particular aspects of the English national curriculum. At the age of seven, these tests and tasks cover English (reading and writing) and mathematics; at the ages of 11 and 14, English, mathematics and science are assessed. The assessment is by means of written tests, in which the majority of items require a constructed response; there are a small number of multiple-choice items. The tests are developed and administered by the Qualifications and Curriculum Authority (QCA), a government agency.

In an attempt to ensure equality of opportunity for all students, each year the QCA provides clear guidance about the nature and extent of access arrangements that can be provided in these statutory assessments (Qualifications and Curriculum Agency 2007).

In contrast to the situation in the United States, there is a dearth of research in the United Kingdom into the validity of access arrangements and how they affect student performance (Woods 2007). There is one piece of published research into the impact of one particular arrangement on national curriculum test performance at age 11 in England (Twist *et al.* 2006, discussed below), none was found in relation to performance at age 14, and very little into performance with access arrangements in public examinations at age 16.

Access arrangements in national curriculum assessment

The accommodations available in the national tests in England are shown in the appendix. These are grouped according to the five categories identified by the NCEO researchers (see eg Lazarus *et al.* 2006): presentation, equipment and materials, response, scheduling/timing, and setting.

It is interesting to note that in the guidance produced by the QCA (2007) access arrangements are grouped according to the difficulty experienced by the student, eg 'Arrangements for pupils who have difficulties reading', 'Arrangements for pupils who have visual impairment'.

Most access arrangements are available at the discretion of the headteacher (school principal). There are two exceptions: the opening of the test papers more than one hour in advance of their scheduled use, and the provision of up to 25% additional time. For these particular arrangements, the designated teacher in the school must provide evidence to the local authority of the student's level of functioning and need. The decision about whether the arrangement is permitted is the decision of the local authority.

In all cases, there is an expectation that any accommodation will be a familiar classroom practice for the student and that evidence would be available to confirm this. Further information about each of these accommodations is available on the QCA website, which also provides specific guidance on the particular accommodations available for use with the mental mathematics test.

Outline of two recent research projects

Two research projects concerning access arrangements in assessments have recently been conducted by NFER on behalf of the National Assessment Agency (part of the QCA).

The impact of additional time on National Curriculum tests

Two groups of students are automatically entitled to additional time in the statutory tests: students with a statement of special educational need are entitled to up to 25 per cent additional time and students using modified large print (MLP) or braille versions are entitled to up to 100 per cent additional time. For all other students, permission for additional time must be sought from either the local authority (in the case of maintained schools) or QCA (private schools). The procedure to be followed is specified in published guidelines (QCA 2007): in each application the student's level of functioning must be described, largely in terms of standardised test scores, although a recommendation from a professional, such as a psychologist, will suffice. There are around about 15,000 applications per subject per key stage each year, requiring considerable time to process.

The research was designed to provide data to inform decision making about possible changes to the application process for additional time. Three research questions underpinned the project:

What is the effect of additional time on test results?

How will the use of additional time change if schools are responsible for allocation?

How equipped are schools for implementing a change in additional time policy?

Some of the evidence collected in relation to the first and second questions is summarised here. Further detail is provided in the published report of the study (Twist, *et al.* 2006).

The sample consisted of 952 students in the final year of primary school (age 10-11). The sample was divided between reading tests (n = 491) and science tests (n = 461). These were tests that were developed for use in future years as national assessments. In addition, scores on the 'live' (2006) key stage 2 tests were collected.

A within-participants design was adopted, i.e. each participant took either two reading or two science tests, one test taken under standard time conditions and one under additional time conditions. The independent variable in the study was the timing condition (standard time/ST or additional time/AT) and the dependent variable was the student scores in the two tests.

Zuriff (2000) pointed out how a reliance on a significance test on group means can conceal the fact that some students may benefit from additional time even though the group as a whole appears not to. In order to ensure that the benefit or otherwise of additional time was investigated not just in terms of group means but also for individual students, the change in individual scores between standard and additional time was investigated.

Cohen, Gregg and Deng (2005) have suggested that differential item functioning analysis is relevant because if DIF is detected in an item it indicates that the item is functioning differently for different groups of students (e.g boys and girls, students with specific learning difficulty and students without) or in different experimental conditions (i.e. in standard or experimental time). It is argued in the former that the item is therefore less valid for one group than for the other and in the latter that the timing accommodation may have affected the way the test assesses the underlying construct in some way.

Summary findings:

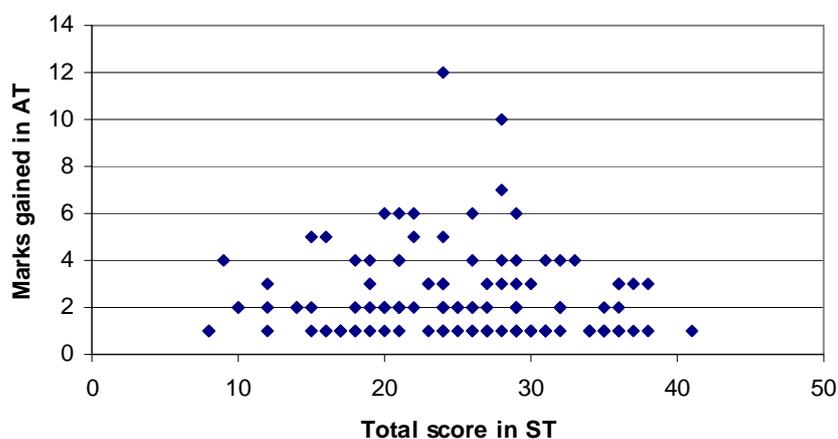
This section contains a very brief outline of selected findings, focusing particularly on the reading tests.

Table 1 shows that additional time had a greater impact on the two reading tests, where it led to the mean score increasing by just over a mark. On three of the four tests it is associated with a smaller standard deviation.

Table 1: Summary of whole test functioning – standard and additional time

	Reading W (max. mark 50)	Reading X (max. mark 50)	Science Y (max. mark 40)	Science Z (max. mark 40)
<i>N</i>	491	485	460	461
<i>N in ST</i>	243	243	230	230
<i>N in AT</i>	248	242	230	231
Standard time condition				
Mean score	27.01	28.96	21.92	24.40
Median	28	30	22	25
Standard deviation	8.35	8.95	8.02	7.21
Additional time condition				
Mean score after ST	26.89	28.85	22.85	23.52
Mean score after AT	28.01	29.97	23.23	23.86
Difference AT-ST	+1.12	+1.12	+0.38	+0.33
Median ST	28	30	23	24
Standard deviation ST	8.09	8.72	7.38	7.91
Median AT	29	31	23.50	24
Standard deviation AT	7.95	8.66	7.16	7.66

Just under half of all students gained further marks on the reading tests when additional time was made available. This fell to about a fifth of students when the science tests were considered. It is important to know what the impact of these additional marks is. Figure 1 shows the relationship between the additional marks and the total score after standard time for reading test W.

Figure 1: Reading test W: marks gained in additional time

An analysis of differential item functioning was performed on the data from the reading tests. This analysis seeks to identify any differences in the facility of particular items in the two conditions (standard time and additional time). This analysis used data from the key stage 2 development project in which the two reading tests W and X had been taken by large samples in standard time. The level of significance gives the probability that this result could have occurred by chance, so the smaller the figure, the higher the significance. The severity is a measure of the absolute difference between boys' and girls' performance.

Eight items were identified by this analysis in each of the reading tests as significant at the 5% level or greater. Whereas for test W, the test condition in which the higher score was obtained was split evenly between standard and additional time conditions, for test X, all items with significant differential functioning were in favour of the additional time condition. Four of the eight items were those requiring a longer response.

Finally, when omission and not reached rates were analysed, it was clear that additional time reduced the omission rates rather more on the reading tests than on the science tests, going to some way to confirm the suggestion that it may be time pressures impacting on item omissions rather more in the reading tests.

It was concluded that while students tended to benefit from additional time, it was dependent on the subject (the benefit was greater in a reading test than in a science test for example) and also on the specific test (in test X specific students across the ability range appeared to benefit from additional time, whereas for test W, the benefit appeared to be focused predominantly on those scoring between about 13 and 24 marks).

Teachers' views were collected by means of a questionnaire (n = 33).

The fact that students taking the reading tests benefited more from additional time than those taking the science tests was anticipated by teachers completing a questionnaire during the testing session. However, over half the teachers were concerned about students' ability to sustain their concentration throughout the longer testing session.

When asked about possible changes to the procedure for granting additional time, with a greater responsibility on schools for determining which students should receive this access arrangement, just over half the teachers (n = 17) suggested that this would increase the use of additional time. This same proportion of teachers expected that greater use of additional time would lead to improved test performances. A small number of teachers (n = 7) thought that this change would make the system more manageable but a few (n = 3) raised concerns about fairness.

The use of access arrangements in the single level test pilot

A pilot initiative by the Department for Children, Schools and Families, *Making Good Progress*, includes the development of tests at a single curriculum level in reading, writing and mathematics, designed to confirm teacher assessments and to be made available at two testing points in the year (December and June).

NFER undertook an analysis of the extent and impact of access arrangements utilised in the first testing window of the pilot (December 2007), and also interviewed teachers in schools in the pilot about the procedures for access arrangements. The tests covered national curriculum levels 3, 4, 5 and 6, and in this trial included students aged from 7 (year 3) to 14 (year 9).

There was some relaxation in the procedures followed by schools in the use of access arrangements during the pilot. Schools could determine which arrangements should be used – including additional time – and recorded any changes to the testing conditions on a form which was attached to the student's test paper.

Summary findings:

- Access arrangements were twice as likely to be used in tests of mathematics as in tests of reading and writing.
- About three-quarters of the students utilising access arrangements were boys.
- Over half of all instances of access arrangements were by students taking level 3 tests, and over a quarter by those taking the level 4 tests.
- Additional time was the most frequently used access arrangement (42% of the tests taken with access arrangements included additional time), followed by the provision of a reader (40%), working in a separate room (31%) and the provision of an amanuensis (14%).
- Subdivision of the above data by subject shows that a reader was the most commonly provided access arrangement in the mathematics test, whereas additional time was the most common arrangement in the reading and writing tests.
- Teachers were asked whether the access arrangements provided were part of normal classroom practice. Just two-thirds (66%) of students receiving additional time were said by the teachers to have additional time to undertake class work. The figures were slightly higher for the other two most commonly used access arrangements: separate room (72%) and reader (78%).
- During interviews, some teachers were concerned that the availability of human resources (eg to act as readers or as amanuenses) might impede the provision of

access arrangements in single level tests when potentially greater numbers of students would be involved than in the current statutory test arrangements.

- There was some suggestion that additional time may be of greater value in single level tests than in the current national curriculum tests: if students are appropriately entered then they are likely to be able to attempt and gain marks on a higher proportion of questions.

Conclusion

Procedures in England for the use of access arrangements in a high-stakes, large scale testing programme and in public examinations are well-documented. The two pieces of research summarised above are valuable in that there is a sparsity of evidence in the UK of the use of access arrangements and their impact of access arrangements on student performance.

References

Cohen, A., Gregg, N. and Deng, M. (2005). 'The role of extended time and item content on a high-stakes mathematics test', *Learning Disabilities Research and Practice*, **20**, 4, 225–33.

Joint Council for Qualifications (2007). *Regulations and Guidance Relating to Candidates who are Eligible for Adjustments in Examinations GCSE, GCE, GNVQ, AEA, Entry Level, Basic Skills & Key Skills: Access Arrangements and Special Consideration* [online]. Retrieved 27 July, 2008:
http://www.jcq.org.uk/exams_office/access_arrangements/regulationsandguidance/

Lazarus, S. S., Thurlow, M. L., Lail, K.E., Eisenbraun, K. D., & Kato, K. (2006). *2005 State Policies on Assessment Participation and Accommodations for Students with Disabilities* (Synthesis Report 64). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved April 16, 2007, from
<http://education.umn.edu/NCEO/OnlinePubs/Synthesis64/>

Qualifications and Curriculum Authority (2007). *Key Stage 2 Assessment and Reporting Arrangements*. Retrieved April 18, 2008 from
<http://www.qca.org.uk/eara/22.asp>

Twist (2008, forthcoming). Accommodations within a high-stakes National Assessment System: the Situation in England. *Journal of International Special Needs Education*.

Twist, L., Donahue, B., Lewis, K. & Keogh, N. (2006). *The impact of additional time in National Curriculum Tests*. Retrieved 27 July, 2008:
http://www.naa.org.uk/naa_17281.aspx

Woods, K. (2007). Access to General Certificate of Secondary Education (GCSE) examinations for students with special educational needs: what is 'best practice'? *British Journal of Special Education* 34(2), 89-95.

Zuriff, G.E. (2000). 'Extra examination time for students with learning disabilities: an examination of the maximum potential hypothesis', *Applied Measurement in Education*, **13**, 1, 99-117.

Appendix

Accommodations available in national curriculum assessments

Presentation

Accommodation	Criteria
reader	Suggested reading age of 9 or lower; available in mathematics, science and writing tests only. Other students, who do not qualify for a reader, may be given help with single words or sentences.
enlarged text	Enlarged print and modified large print tests are available for students with a visual impairment. Enlarged print tests can also be ordered for students with other special educational needs. Tests may be opened up to one hour early in order to be enlarged (not mathematics diagrams).
Braille	All tests are available in Braille for students with a visual impairment.
coloured paper	Test packs may be open up to one hour early in order for the tests to be printed on to coloured paper.
recorded versions	Schools may provide recorded versions of the written mathematics and science tests for students who regularly use recordings or have access to readers as part of normal classroom practice. Recorded versions can also be used alongside the modified versions of the tests. Recorded versions of the English tests are not allowed.
enhancing diagrams	Schools may enhance the shading on diagrams (including Braille tactile diagrams), charts and graphs, to increase their visual clarity.
communicators / signers	In science and mathematics, communicators and signers may translate the whole test paper into British Sign Language or sign-supported English. In the English test, only general instructions and writing prompts that are read to the whole class may be communicated. In the English reading test, help must not be given with reading or understanding the questions, or passages of text on which questions are based. In the spelling test, the words to be spelt may be communicated (without using finger spelling).
translation	Only English language versions of the written tests are supplied. However, schools may provide written or oral translations of individual words, phrases or whole tests in the science and written mathematics tests if this is normal classroom practice. In English, the tests are designed to assess students' ability to read and write in English. Therefore the English tests must not be translated.

Timing / scheduling

rest breaks	Schools can give rest breaks to students who find it difficult to concentrate, or who are likely to experience fatigue, by splitting the tests into sections or stopping the clock.
prompters	Schools may use prompters in all the tests to help students with severe attention problems.
early opening	Schools are permitted to open test papers up to one hour before the test is due to start. If a school needs to open test papers, including modified test papers, more than one hour before a test is due to start, for example to make preparations for a student with special assessment needs, it must apply for permission for early opening.
additional time	Students with a statement of special educational needs [those with the greatest need, approximately 2% of the cohort] are allowed up to 25% additional time for written tests at the school's discretion. Schools do not have to request permission for additional time for students with a statement of special educational needs. Students using MLP or Braille versions of the tests are automatically entitled to up to 100% additional time. In all other cases, if a school feels that a student needs additional time to access a written test, it must request permission, indicating how the student meets the criteria for up to 25% additional time.

Response

scribe	Available in all tests. Word processing, transcription or use of enlarged print tests should be considered before a scribe is used.
recorded responses	In the mathematics and science tests: some students may sign their answers or respond by pointing. Students who use Blissymbolics or eye-pointing may use a communicator to record their answers. Pupils' responses to the English tests must be in English.
translation	In the mathematics and science tests, students may respond in a language other than English. Where a student's responses are in another language, the school must attach a translation for external marking, together with the student's original script and a completed 'Use of a transcript' form. In English, the tests are designed to assess students' ability to read and write in English. Therefore pupils' responses must be in English.

Equipment and materials including technological aids

word processor	May be used in mathematics and science tests if that is student's usual method of recording. May be used in English tests if student has special educational needs and would not otherwise be able to access the tests or has considerable writing difficulties and customarily uses a word processor or similar aid for writing across the curriculum.
voice activated software	This may be used as long as any editorial functions are turned off and the validity and reliability of the tests are maintained.
predictive text	May be used by students with a physical disability that prevents him or her from accessing the test in the given time without using predictive text or a severe learning difficulty that prevents him or her from accessing the test without using predictive text. Predictive text may not be used in the spelling test.
low-vision aids	Students who normally use technical and electrical aids, including low-vision aids such as closed-circuit TV/JOCR scanners, may use these for the tests.
apparatus	In the mathematics and science tests, teachers may provide real objects that look like those illustrated in the tests. However, students must not experiment with the apparatus. This arrangement is normally used for students who have difficulties accessing two-dimensional diagrams.

Setting

alternative location	A student or group of students may take the tests at a location other than the school (such as hospital or home). The tests must follow the statutory timetable and be supervised by someone unrelated to the student/s.
separate room	Schools are advised to consider allowing students to take the tests in a separate room if they are using access arrangements such as rest breaks, additional time, amanuenses, readers or technological aids.