

Testing,

Motivation  
and Learning

*Assessment Reform Group*

*supported by The Nuffield Foundation*

This pamphlet is written by members of the Assessment Reform Group (ARG). The group started work over 12 years ago as the Policy Task Group on Assessment of the British Educational Research Association. Membership has changed slightly over the years but the major focus of the group has remained the same: to work on policy issues in relation to assessment and to bring research evidence to the attention of policy makers and practitioners. ARG has played a key role in making the educational community aware of research on ‘assessment for learning’ by commissioning the review by Black and Wiliam, *Inside the Black Box*, and by writing a follow-up pamphlet, *Assessment for Learning: beyond the black box*, and a leaflet, *Assessment for Learning: 10 principles*.

This new pamphlet is a summary of a review of research on ‘assessment of learning’ (summative assessment) and in particular the impact of summative testing on pupils’ motivation to learn. Again the findings, and their implications, will be important for policy-makers and prac-

tioners to consider.

The review was jointly funded by the Nuffield Foundation and the EPPI-Centre, and was carried out principally by Wynne Harlen and Ruth Deakin-Crick. The production of this pamphlet was specifically funded by the Nuffield Foundation.

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## Introduction

It is reasonable to expect that testing has an impact on the way pupils learn and on their motivation to learn. The questions we are addressing here are: what is the nature of that impact and does pupils' learning benefit from it? Pupils need to know how their learning is progressing. Teachers also need to know how their pupils are progressing, to guide both their own teaching and the pupils' further learning. Many others—parents, other teachers, employers—will have an interest in looking back on what has been learned by an individual pupil, often using a grade or mark as an overall summary of that learning. In addition, there has been an increasing tendency for the results from testing and assessment of learning ('summative assessment') to be used, when combined for whole groups of pupils, as indicators of the performance of teachers, schools and the education system.

The issue facing us is not *whether* we should assess to summarise learning but rather *how* we should do it. How do we use the results obtained from those assessments to promote better learning?

There are different views on this. Some consider that testing raises levels of achievement. According to this view, testing provides incentives to pupils and their teachers to improve their perform-

ance. This in turn helps them to gain the rewards or avoid the penalties. Public knowledge of results makes schools realise that they have to show continual improvement. This benefits their pupils; more is expected from them and more support may be given to them.

Another view is that testing is motivating only for those who anticipate success. Even then, it is argued, it only promotes motivation towards performance goals rather than learning goals. For the less successful pupils, repeated tests lower self-esteem and the effort they put into learning. This has the effect of increasing the gap between high- and low-achieving pupils. It is also claimed that the increase in scores often noted when 'high stakes' tests are introduced is attributable more to teachers and pupils becoming familiar with test requirements than to real improvements in the quality of pupils' learning. Linked with this is the recognition that the need for 'lifelong learning' places an increased emphasis on motivation. This must come from enjoying learning and knowing how to learn.

What has research to offer in relation to these rival claims about the impact of testing on motivation? In the review of research we explored several dimensions of the impact of summative assessment and testing on pupil motivation and sought answers to the questions:

- **What is the overall impact on pupil motivation?**
- **How does the impact vary with the characteristics of pupils?**
- **How does the impact vary with the conditions of assessment/testing?**
- **Where impact on pupils has been found, what is the evidence of impact on teachers and teaching?**
- **What actions, in what circumstances, are likely to increase the positive and decrease the negative impact on pupil motivation?**

In the next section we summarise the focus and main findings of the review of research, which was funded by the Nuffield Foundation and by the Evidence for Policy and Practice Information and Co-ordination Centre (EPPI-Centre). (See Appendices A and B for details.) We then outline the implications of these findings for policy and practice in relation to: the work of teachers in classrooms; the professional development of teachers; the management of schools; the inspection and evaluation of schools; and national and local assessment policies.

## The focus of the review

**T**he review process sought out evidence from research that links ‘summative assessment and testing’ to the complex concept of

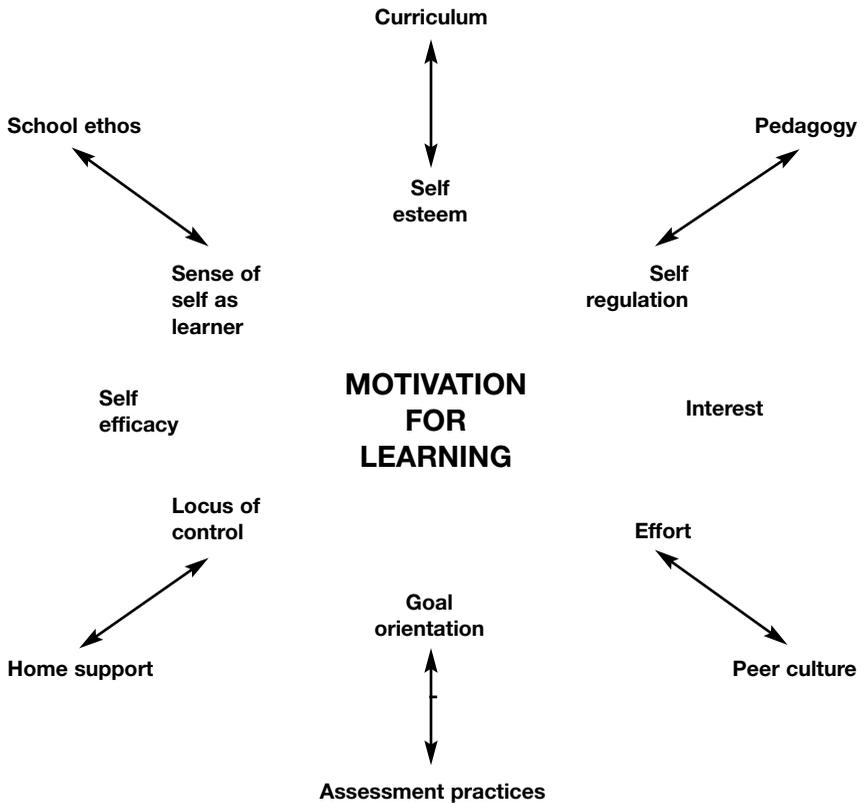
‘motivation to learn’. The former covered any form of judgement of pupils’ performance for summative purposes, including formal tests, teacher-made tests and classroom grading. The latter embraced components of motivation such as ‘effort’, ‘self-regulation’ and ‘self-esteem’, as well as acknowledging broad distinctions such as ‘intrinsic’ and ‘extrinsic’ motivation. Some of these components are set out and explained in Figure 1, page 3. As can be seen from the figure, assessment is only one of several factors affecting motivation for learning.

## Main findings

**A** widespread search of published research found 183 studies, which were potentially relevant to the review questions. Of these, 19 were identified<sup>1</sup> as providing sound and valid empirical evidence. What emerges is strong evidence of the negative impact of testing on pupils’ motivation, though this varied in degree with the pupils’ characteristics and with the conditions of their learning. Many aspects of the impact have significant consequences for pupils’ future learning, and thus are causes for concern. At the same time the findings indicate ways to increase the positive impact and to decrease the negative impact on pupils’ motivation for learning.

<sup>1</sup> The analytical process of selection is explained in Appendices B and C.

Figure 1



**Self-esteem:** how one values oneself as a person and as a learner

**Self-efficacy:** how capable one feels of succeeding in a learning task

**Self-regulation:** the capacity to evaluate one's own work and to make choices about what to do next

**Goal-orientation:** whether one's goal is to learn in order to understand or to perform well on a test (which may not reflect secure learning)

**Interest:** the pleasure from and engagement with learning

**Effort:** how much one is prepared to try and persevere

**Locus of control:** how much one feels in control of learning as opposed to it being directed by others

**Sense of self as a learner:** how confident one feels of being able to learn from the classroom experiences provided.

None of the studies dealt with all components of motivation to learn but most of the findings are supported by evidence from more than one study. In the rest of this section, the chief sources of evidence are indicated by numbers in brackets. These refer to the relevant studies listed in Appendix C.

### *What is the overall impact on pupils' motivation?*

An impact on self-esteem was reported in all studies dealing with this aspect of motivation. For example, two studies (4, 5) showed that, after the introduction of the National Curriculum tests in England, low-achieving pupils had lower self-esteem than higher achieving pupils. Before the tests were introduced there was no correlation between self-esteem and achievement. Although no cause and effect can be claimed here, an impact can be inferred since self-esteem is an outcome of educational experience as well as being a factor determining future learning. Put simply, one impact of the tests was the reduction in self-esteem of those pupils who did not achieve well.

Pupils at primary school are also aware that tests give only a narrow view of their learning. When tests pervade the ethos of the classroom, test performance is more highly valued than what is being learned (15, 16). When tests become the main criteria by which

pupils are judged, and by which they judge themselves, those whose strengths lie outside the subjects tested have a low opinion of their capabilities (7, 12, 16, 17).

The results of tests that are 'high stakes' for individual pupils, such as the 11+ in Northern Ireland, have been found to have a particularly strong impact on those who receive low grades (11, 12). However, tests that are high stakes for schools rather than for pupils (such as the national tests in England and state-mandated tests in the US) can have just as much impact. Pupils are aware of repeated practice tests and the narrowing of the curriculum (14, 17). Only those confident of success enjoy the tests (12). In taking tests, high achievers are more persistent, use appropriate test taking strategies and have more positive self-perceptions than low achievers (14). Low achievers become overwhelmed by assessments and de-motivated by constant evidence of their low achievement. The effect is to increase the gap between low and high achieving pupils (9, 14, 16).

The use of repeated practice tests impresses on pupils the importance of the tests. It encourages them to adopt test-taking strategies designed to avoid effort and responsibility. Repeated practice tests are, therefore, detrimental to higher order thinking (14).

### *How does the impact vary with the characteristics of pupils?*

Lower achieving pupils are doubly disadvantaged by tests. Being labelled as failures has an impact on how they feel about their ability to learn. It also lowers further their already low self-esteem and reduces the chance of future effort and success (9, 14).

Only when low achievers have a high level of support (from school or home), which shows them how to improve, do some escape from this vicious circle (18).

Older pupils (that is, age 11 and above) are more likely than younger ones to have a clear understanding of the meaning of grades than their younger counterparts. However, they are less likely to report teachers' grades as being fair even though they attach more importance to them (7). Older pupils are more likely to attribute success to effort and ability while younger ones attribute it to external factors or practice. Older pupils are also more likely to focus on performance outcomes (i.e. scores and levels) rather than learning processes (16).

Lower achieving older pupils are more likely than younger ones to minimise effort and respond to tests randomly or by guessing. There is no evidence of age differences in test taking strategies (checking, monitoring time, etc). Instead of motivation increasing with age, older pupils feel more resentment, anxiety, cynicism and mistrust of standardised

achievement tests (14).

Girls are reported as expressing more test anxiety than boys (1, 7, 8, 17). Girls are also more likely to think that the source of success or failure lies within themselves rather than being influenced by external circumstances. This has consequences for their self-esteem, especially when they view their potential as fixed (7).

### *How does the impact vary with the conditions of testing?*

The conditions found to affect the impact of testing relate to:

- the degree of self-efficacy (the capacity to undertake a task successfully) of pupils;
- the extent to which their effort is motivated by the prospect of reward or punishment that follows from the test performance (extrinsic motivation). This may have little to do with the learning or the value and satisfaction derived from what is learned (intrinsic motivation).

- the encouragement of self-evaluation and self-regulation and the pressure imposed by adults outside the school.

How assessment of their learning is reported back to the pupil (feedback) affects motivation to learn. It has a central role since the feeling of self-efficacy is derived from performance in previous tasks of the same kind. If pupils have experienced success in earlier perform-

ance they are more likely to feel able to succeed in a new task (2, 6, 16).

Feedback from the teacher that focuses on how to improve or build on what has been done (described as task-related) is associated with greater interest and effort (3, 16). Feedback that emphasises relative performance, for example marks or grades which are formally or informally compared with those of others, encourages pupils to concentrate on getting better grades rather than on deeper understanding (3).

Teachers' own class testing practices can help to increase pupils' self-efficacy if teachers explain the purpose and expectations of their tests and provide task-related feedback (2, 6). Further, a school's 'assessment culture' influences pupils' feelings of self-efficacy and effort. Collegiality—meaning constructive discussion of testing and the development of desirable assessment practice in the school—has a positive effect, whilst an exclusive focus on performance goals has a negative effect (6).

The degree to which learners are able to regulate their own learning also appears to foster pupils' interest and to promote focus on the intrinsic features of their work (15). Pupils who have some control over their work by being given choice and by being encouraged to evaluate their own work are more likely to value the learning itself rather than to focus only on whether or not it is correct

(1, 15, 16, 19).

When test scores are a source of pride to parents and the community, pressure is brought to bear on the school for high scores (11, 12). Similarly, parents bring pressure on their children when the result has consequences for attendance at high social status schools. For many pupils this increases their anxiety even though they recognise their parents as being supportive (12, 16).

*Where impact on pupils has been found, what is the evidence of impact on teachers and teaching?*

The evidence suggests that teachers can be very effective in training pupils to pass tests even when the pupils do not have the understanding or higher order thinking skills that the tests are intended to measure (9). When test results are used for making decisions that affect the status or future of pupils, teachers or schools ('high stakes tests'), teachers adopt a teaching style that emphasises transmission of knowledge. This favours those pupils who prefer to learn by mastering information presented sequentially. Those who prefer more active and creative learning experiences are disadvantaged and their self-esteem is lowered (11, 16). External tests have a constricting effect on the curriculum, resulting in emphasis on the subjects tested at the expense of creativity and personal and social development (9, 14, 17).

High stakes tests often result in a great deal of time being spent on practice tests, with test performance being highly valued and other pupil achievements undervalued (9, 12, 17). Furthermore, teachers' own assessments become mainly summative in function rather than formative (16).

*What actions in what circumstances are likely to increase the positive and decrease the negative impact on pupil motivation?*

The research shows that the negative impact of tests can be reduced by ceasing to focus teaching on test content. It can also be reduced by ending the practice of 'training' pupils in how to pass the tests and by preventing the use of class time for repeated practice tests (9, 11, 12, 14, 17). Pupils should not be faced with tests in which they are unlikely to experience success (6, 12, 13, 18).

The review findings also indicate actions that can be taken to decrease the negative and increase the positive impact of summative assessment and tests. In relation to the tests such actions include:

- involving pupils in decisions about tests (12, 13);
- using assessment to convey a sense of progress in their learning to pupils (6, 18);
- providing explanations to pupils about

the purpose of tests and other assessments of their learning (7, 12, 16);

- providing feedback that helps further learning (2, 3 6).

In relation to teaching approaches, successful actions include:

- adopting approaches that encourage self-regulated learning, including collaboration among pupils (6, 15);
- catering for a range of learning styles (11);
- cultivating intrinsic interest in the subject (1);
- putting less emphasis on grades (7);
- promoting learning goal orientation rather than performance orientation (1, 2, 18, 19);
- developing pupils' self-assessment skills and their use of criteria relating to learning, rather than test performance (16, 19);
- making learning goals explicit and helping pupils to direct effort in learning (18).

Actions at the whole school level include:

- establishing a school climate in which there is constructive discussion about tests and assessment of learning, both among teachers and between teachers and pupils (6);
- developing a constructive and supportive school ethos to minimise test anxiety (1, 12, 16);
- ensuring that the demands of the tests are consistent with the expecta-

tions of teachers and the capabilities of the pupils (12, 18);

- broadening the range of information used in assessing the attainment of pupils (9, 14, 17).

## Implications for the work of teachers in classrooms

The review emphasises what teachers in classrooms can do to avoid the negative impact of tests on motivation for learning. It also indicates the actions that can enhance motivation for learning. To accomplish these goals, teachers should:

### *do more of this ...*

**Provide choice and help pupils to take responsibility for their learning.**

**Discuss with pupils the purpose of their learning and provide feedback that will help the learning process.**

**Encourage pupils to judge their work by how much they have learned and by the progress they have made.**

**Help pupils to understand the criteria by which their learning is assessed and to assess their own work.**

**Develop pupils' understanding of the goals of their work in terms of what they are learning; provide feedback to pupils in relation to these goals.**

**Help pupils to understand where they are in relation to learning goals and how to make further progress.**

**Give feedback that enables pupils to know the next steps and how to succeed in taking them.**

**Encourage pupils to value effort and a wide range of attainments.**

**Encourage collaboration among pupils and a positive view of each others' attainments.**

### *and do less of this ...*

**Define the curriculum in terms of what is in the tests to the detriment of what is not tested.**

**Give frequent drill and practice for test taking.**

**Teach how to answer specific test questions.**

**Allow pupils to judge their work in terms of scores or grades.**

**Allow test anxiety to impair some pupils' performance (particularly girls and lower performing pupils).**

**Use tests and assessment to tell students where they are in relation to others.**

**Give feedback relating to pupils' capabilities, implying a fixed view of each pupil's potential.**

**Compare pupils' grades and allow pupils to compare grades, giving status on the basis of test achievement only.**

**Emphasise competition for marks or grades among pupils.**

## Implications for professional development

**T**eachers develop their professional skills in a variety of ways. The process begins in pre-service education and training and continues through formal professional development activities, organised both within and outside schools. Informal learning also takes place through peer observation activities and in the interactions between teachers.

How might we represent the conclusions of this review in these professional development activities? What should be the focus of these activities? In conducting the review we have identified some of the answers to these questions. It is important that professional development should involve:

- extending awareness both of the limited validity of tests (and other assessments of learning) and of the ways in which evidence from them can be used to guide learning;
- recognising how preparation for, involvement in, and responding to tests and assessment of learning can impact negatively on pupils' motivation;
- devising strategies to minimise the negative impacts of tests and assessment of learning;
- understanding the differential impact of tests on pupils including, for example, how the negative impact on low

attaining pupils can be reduced;

- developing skills in designing tests and using the results from them to maximise their positive impact on the motivation of all pupils. Successful strategies involve the use of peer group learning in systematic revision, in setting questions and in marking papers. In this manner, they can better understand summative assessments and can realise the contribution of such assessments to their learning<sup>2</sup>;
- discussing and helping the implementation of within-school strategies for emphasising learning goals as distinct from performance goals. Teaching methods that contribute most to the attainment of these goals will also be a feature of such discussions.

## Implications for the management of schools

**A**ssessment and testing of pupils for summative purposes is routine for those who manage schools, whether as head teachers, other senior managers or school governors. It can take several forms including teacher-made tests, school-devised systems of measuring pupil performance, bought-in tests for specific purposes and high profile national systems of

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<sup>2</sup> Black, P., Harrison, C., Lee, C., Marshall, B. and Wiliam, D. (2002) Working inside the black box: Assessment for learning in the classroom. London: King's College.

tests and examinations. Given current external demands for performance measures—both raw test results and value-added scores—there is strong pressure on schools to collect more and more of these kinds of data.

However, the evidence presented here indicates that the experience of testing and assessment of learning can have a negative effect on pupils' motivation to learn. In contrast, a previous review of research, by Paul Black and Dylan Wiliam<sup>3</sup>, provides evidence that formative assessment ('assessment for learning') can improve pupils' attainments. Assessment for learning does this by focusing on helping pupils to learn better—without teaching to the test and without increasing test-taking or test practice. Taken together, these two sets of findings strongly suggest that pupils will be better motivated to learn, will learn better and will achieve more, if schools focus on promoting formative assessment practice and use summative assessment only when it is really necessary.

Such a strategy requires school managers to take some risks, though the evidence suggests these risks may be more imagined than real. They need to establish an assessment policy and culture in their schools, which promotes the value of assessment *for* learning and

places assessment *of* learning in perspective. This will involve mediating government policy to staff and parents. Senior managers must not communicate their anxiety for good results to pupils or make them feel burdened by the responsibility for the school performing well. The pupils' priority should be their own learning in all areas of the curriculum, not only those assessed by tests.

The evidence suggests that better school results will follow from better learning and by developing and maintaining pupils' motivation to learn. In addition to promoting formative assessment for learning, school policy also needs to address the issue of when it is appropriate to use summative assessments, and in what form. The ideal situation is to assess pupils only when their teachers judge they have a good chance of success. In this way the dangers of demotivation, following repeated failure, will be reduced.

Establishing a positive learning culture in schools involves winning the hearts and minds of all: pupils, parents, teachers and the wider school community. This can only be achieved through effective communication, consultation and collegiality. This itself may demand new structures and processes to be developed at whole school level. Opportunities to work with parents will be especially important.

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<sup>3</sup> Black, P and Wiliam, D (1998) *Inside the Black Box*. London: King's College London.

## Implications for the evaluation and inspection of schools

Schools routinely evaluate their own performance and are subject to periodic inspection by external agencies. Indicators derived by combining the results of individual pupils have a significant role in self-evaluation and inspection. However, they can only be indicative of some aspects of a school's performance. The use of such results for these purposes is likely to affect the way in which tests are seen both by teachers and by pupils.

What are the implications of this review for evaluation and inspection? We have identified several conclusions from the findings:

- performance in tests (and other summative assessments of learning) should be clearly acknowledged as only a partial indication of a school's success in contributing to the learning of its pupils;
- targets for improvement will necessarily include indices of pupil performance as well as other indices but they should not be narrowly focused on them;
- criteria for the inspection of schools should focus at least as much on the quality of learning observed, and on the extent to which assessments contribute to pupils' learning, as on indicators of learning outcomes;

- inspectors' judgements of assessment policies and practices should include reference to the extent to which the schools have minimised the negative impacts of tests and maximised their contribution to pupils' learning;
- criteria for school evaluation should refer to all of a school's aims and to all areas of educational activity.

## Implications for national and local assessment policies

Policies that lead to the introduction of systems for measuring, and reporting on, pupil attainment need to be clearly based on a well defined set of purposes. This has not always been the case. Some, such as the GCSE in England, Wales and Northern Ireland, have been designed mainly to serve a particular purpose of assessment, i.e. certification. Others, such as National Curriculum assessment, have had ambitions to serve a wide range of purposes.

What does the review evidence suggest that those responsible for designing testing and assessment systems, or using the evidence from them, should do? In reviewing the evidence, we have concluded that designers and users of assessment systems and tests should:

- be more actively aware of the limited validity of the information about pupil attainment that is being obtained from

current high stakes testing programmes, such as the Key Stage 2 National Curriculum tests;

- reduce the stakes of such summative assessments by using, at national and local levels, the performance indicators derived from them more selectively and more sensitively. They should take due account of the potential for those indicators to impact negatively on learning, on teaching and on the curriculum;
- be more aware of the true costs of national systems of testing, in terms of teaching time, practice tests and marking. This in turn should lead policy makers to come to reasoned conclusions about the benefits and costs of each element in those systems;
- for tracking standards of attainment at national level, consider testing a sample of pupils rather than a full age cohort. This would reduce both the negative impacts of high stakes tests on pupil motivation and the costs incurred;
- use test development expertise to create forms of tests and assessments that will make it possible to assess all valued outcomes of education, including, for example, creativity and problem-solving;
- develop a broader range of indicators to evaluate the performance of schools. Indicators that are derived from summative assessments should

therefore be seen as only one element in a more broadly-based judgement.

This would diminish the likely impact of public judgements of school performance on those pupils whose motivation is most ‘at risk’.

## Appendix A: Sources of information

- 1 The full review report is cited as: Harlen, W. and Deakin Crick, R. (2002) A systematic review of the impact of summative assessment and tests on pupils’ motivation for learning (EPPI-Centre Review). In *Research Evidence in Education Library*. Issue 1 London: EPPI-Centre, Social Science Research Unit, Institute of Education.
- 2 The full review, databases and four user reviews can be found on the EPPI web site: <http://eppi.ioe.ac.uk>
- 3 An extended article based on the review with responses from eminent educators in the field of assessment will be published in a special edition of *Assessment in Education*, 10/2, July 2003.

## Appendix B: Background and methods

**T**his review was prompted by the need to identify the impact of summative assessment and testing, which has burgeoned in many

countries in the past decade, on pupils' motivation for learning. Whilst the impact of testing on teachers, teaching and pupils' achievement has been well researched and represented in reviews of research, much less attention had been given to its impact on the affective and conative (mental activity) outcomes of education. The aim of developing in today's pupils the capacity to continue learning beyond the years of schooling into lifelong learning is widely embraced. If some assessment practices are reducing motivation for learning, the prospect for such pupils' interest in lifelong learning would be a cause for concern. The purpose of the review was therefore to identify and synthesise research evidence about the impact of summative assessment on motivation for learning.

The review was conducted using the procedures for systematic review of research in education being developed by the EPPI-Centre. It involved a wide-ranging search for research studies, written in English, of assessment for summative purposes in schools for pupils between the ages of 4 and 18, which reported on aspects of pupils' motivation for learning. The search for studies involved scanning relevant electronic databases and journals online, following up citations in other reviews, hand-searching journals held in the library, and using personal contacts. This resulted in

the listing of 183 studies. The relevance of each one to the review was judged initially from abstracts and some were excluded before full texts were read. Successive rounds of applying criteria resulted in the identification of the most relevant studies (of which there were 19), which were analysed in depth using the *Guidelines for Extracting Data and Assessing Quality of Primary Studies in Educational Research*, Version 0.94 (EPPI-Centre, 2001). Judgements were made as to the strength of evidence relevant to the review provided by each study. In the synthesis, greater weight was given to studies providing the strongest evidence.

None of the studies related to all the components of motivation indicated in Figure 1, but they could be grouped according to the particular aspects investigated. The three groups, central to motivation for learning and expressed from a learner's perspective, are as follows:

- *What I feel and think about myself as a learner*: related to self-esteem, self-concept, sense of self as a learner, attitude to assessment, test anxiety, learning disposition
- *The energy I have for the task*: related to effort, interest in and attitude to subject, self-regulation
- *How I perceive my capacity to undertake the task*: related to locus of control, goal orientation, self-efficacy.

In the report of the review, the synthesis of findings relating to the question ‘What is the overall impact on pupil motivation?’ is set out under these headings.

The final phase of the review included a presentation of the findings to an expert group at a specially convened consultation conference. This was attended by 45 experts, representing teachers, local authority or independent advisers on assessment, officials from government or government agencies, teacher educators and academics with research interests in educational assessment and policy. A draft copy of the review report was sent to all participants before the conference and the methodology and findings were presented in detail during the conference. The outcomes informed the implications in the final report and the summaries in this pamphlet.

## Appendix C: List of studies used

- 1 Benmansour, N. (1999) Motivational orientations, self-efficacy, anxiety and strategy use in learning high school mathematics in Morocco. *Mediterranean Journal of Educational Studies*. 4: 1-15
- 2 Brookhart, S. & DeVoge, J. (1999) Testing a theory about the role of classroom assessment in pupil motivation and achievement. *Applied Measurement in Education* 12: 409-425
- 3 Butler, R. (1988) Enhancing and undermining intrinsic motivation: the effects of task-involving and ego-involving evaluation on interest and performance. *British Journal of Educational Psychology* 58: 1-14
- 4 Davies, J. & Brember, I. (1999) Reading and mathematics attainments and self-esteem in years 2 and 6: an eight year cross-sectional study. *Educational Studies* 25: 145-157
- 5 Davies, J. & Brember, I. (1998) National curriculum testing and self-esteem in year 2 the first five years: a cross-sectional study. *Educational Psychology* 18: 365-375
- 6 Duckworth, K., Fielding, G. & Shaughnessy, J. (1986) *The relationship of high school teachers' class testing practices to pupils' feelings of efficacy and efforts to study*. US: Oregon University
- 7 Evans, E. & Engelberg, R. (1988) Pupils perceptions of school grading. *Journal of Research and Development in Education* 21: 44-54
- 8 Ferguson, C. & Francis, J. (1979) Motivation and mode: an attempt to measure the attitudes of ‘O’ level GCE candidates to English language. *Educational Studies* 5: 231-239
- 9 Gordon, S. & Reese, M. (1997) High stakes testing: worth the price? *Journal of School Leadership* 7: 345-368
- 10 Hughes, B., Sullivan, H. & Beaird, J. (1986) Continuing motivation of boys

and girls under differing evaluation conditions and achievement levels.

*American Educational Research Journal* 23: 660-667

- 11 Johnston, J. & McClune, W. (2000) 'Selection project sel 5.1: Pupil motivation and attitudes - self-esteem, locus of control, learning disposition and the impact of selection on teaching and learning'. In *The Effects of the Selective System of Secondary Education in Northern Ireland: Research Papers Volume II*, Bangor, Co Down: Department of Education, pp 1-37 ISBN 1 897 592 663
- 12 Leonard, M. & Davey, C. (2001) *Thoughts on the 11 plus*. Belfast: Save the Children Fund
- 13 Little, A. (1994) Types of assessment and interest in learning: variation in the south of England in the 1980s. *Assessment in Education* 1: 201-222
- 14 Paris, S., Lawton, T., Turner, J. & Roth, J. (1991) A developmental perspective on standardised achievement testing. *Educational Researcher* 20: 12-20
- 15 Perry, N. (1998) Young children's self-regulated learning and contexts that support it. *Journal of Educational Psychology* 90: 715-729
- 16 Pollard, A., Triggs, P., Broadfoot, P., McNess, E. & Osborn, M. (2000) *What pupils say: changing policy and practice in primary education* (chapters 7 and 10). London: Continuum
- 17 Reay, D. & Wiliam, D. (1999) 'i'll be a nothing': structure, agency and the construction of identity through assessment. *British Educational Research Journal* 25: 343-354
- 18 Roderick, M. & Engel, M. (2001) The grasshopper and the ant: motivational responses of low achieving pupils to high stakes testing. *Educational Evaluation and Policy Analysis* 23: 197-228
- 19 Schunk, D. (1996) Goal and self-evaluative influences during children's cognitive skill learning. *American Educational Research Journal* 33: 359-382



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