Chapter 11
ORACLE to MAST: 40 Years of Observation Studies in UK Junior School Classrooms

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Abstract The ORACLE study, first published in 1980, provided much needed systematic descriptive information on the interactions and behaviour of pupils in the upper primary school in the UK, to set against the political rhetoric of the day. Since this pioneering study, there have been several other systematic observation studies of pupils at the same stage, but to date, these results have not been collated in order to provide an historical account of trends over time. This chapter uses data from six large-scale studies (ORACLEs 1 and 2, One in Five, PACE, DISS and MAST) to assess change over time in amounts of interactions with teachers, interactions with peers and independent activities. In addition it addresses two features of mainstream primary schools that have arisen since the ORACLE study: the increase in pupils with special educational needs (SEN) and the huge rise on the numbers of teaching assistants (TAs) working in classrooms. A main result was the doubling of interactions with teachers over the last 35 years, especially interactions as part of the whole class. As a result pupils had a more pronounced passive role. In contrast to pupils without SEN, we found that pupils with SEN had high levels of separation from their peers, either through adult support or because of time spent out of the class. But the main trend over time for pupils with SEN was for them to have far more interactions with TAs, often one-to-one. This has had profound consequences for such pupils' educational experience and progress.

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Introduction

All research takes place in a particular context, with defining characteristics, conflicts and issues. It is the good fortune of some rare research projects to provide a seminal benchmark when addressing the situation at a given point in time, even though this may only become clear in retrospect. The publication of the ORACLE studies in 1980 provided such a benchmark.

The use of systematic observation in education took off in the USA in the 1960s and 1970s. Educational researchers had begun to recognise the limitations of previous efforts to understand what constituted effective teaching – in particular that there was too much emphasis on teacher's personality characteristics rather than what they actually did in classrooms. An overriding concern was to capture the ongoing nature of teaching in an objective and quantifiable way and to then find ways of relating this to how well pupils were performing. This type of 'process–product' research was the earliest form of what we now call teacher effectiveness research. By the time of the publication of the book by Dunkin and Biddle (1974), there were a lot of observation systems. In the UK, Maurice Galton was a pioneer of this style of research and indeed published his own compendium of UK-based observation systems to complement the widely cited 'Mirrors for Behaviour' compendium in the USA (Simon and Boyer 1974).

But it was the first ORACLE book – *Inside the Primary Classroom* – which firmly established the use of systematic observation in education. Although the study had a number of different features and aims, it was the description of teacher and pupil behaviour in junior classrooms that was most impressive. The study built on the previous observation studies by Deanne Boydell in the 1970s. This comprised a 'teacher record' which comprised 27 mutually exclusive categories of teacher behaviour: statements, questions, silent interactions, etc., as well as categories denoting whether interactions were in a class, group or individual setting. For the 'pupil record', she adapted a USA system to construct a method of observing pupil behaviour with a carefully constructed list of categories to exhaustively record a pupil's behaviour across interactions with the teacher, other pupils and when not interacting and engaged in independent work. The research used a form of time sampling involving a series of snap shots every 25 seconds ('instantaneous time sampling') at which points teacher and pupil behaviour was coded.

What resulted was a huge number of observations over a lot of classrooms, and when collated these provided insights into the main features of classroom life that would not be available to everyday experience (or received opinion). Even teachers, who can be expected to have a profoundly deep experience of classrooms, will typically only really know their own classroom and that of their nearest colleagues.

The study was conducted in the context of a backlash against the Plowden Report in the late 1960s and the supposed dominance of child-centred, progressive education in schools. A couple of schools (including William Tyndale Primary School in London) had collapsed in a clamour of right-wing recriminations about the state of public education. This movement led to the then Prime Minister James Callaghan's

Ruskin Lecture, the right-wing 'Black Papers', and to the widely held view that progressive ideas had led to an overconcern with pupil freedoms, out-of-control children and ineffectual teaching, with little work on the basic subjects of literacy and mathematics. Such views are still heard today of course.

The first ORACLE book (Galton et al. 1980) showed that the premises of this view were almost entirely wrong. The researchers found that around three quarters of classroom time was spent on curriculum-related activities, lessons were dominated by basic skills of number and language, and there were very low levels of disruption. The value of the study is that the observations were so extensive and carefully collected that it was a damning verdict on the extreme portrayal of schools by some on the right.

In one of the most interesting findings, the 'asymmetry' of teacher–pupil contact was highlighted. That is, from the teacher's point of view, she interacts with children a lot and often with individuals, but from an individual pupil's point of view, they often work alone, interacting with the teacher in only one sixth of the lesson time and even then most often as but one pupil in the whole class. In general, there was a good deal of individual work, but little individual attention or instruction, and little cooperative group work.

The publication of the ORACLE studies was particularly significant for one of us (PB) because at the end of the 1970s, he was engaged in an observational study of children's play for his PhD and also at the same time moving from developmental psychology to educational research. In 1980, he joined a research team led by Barbara Tizard at the Thomas Coram Research Unit (part of the Institute of Education in London) and had a main responsibility for the construction of an observation system to be used to study younger, infant school-aged children (5–7 years). Although the system developed by the TCRU team was different, the ORACLE study was a very useful reference point, as was a visit to Leicester in the 1980s to talk through the work with Maurice.

The TCRU study was a follow-up of children's progress in London schools from school entry (Blatchford et al. 1987; Tizard et al. 1988). An observation system was devised which covered individual children's behaviour in interaction with their teacher, with other children and when not interacting. Within each of these last three 'social modes', there were categories denoting whether work or play was on task, procedural, social or 'task avoidance'. Each child was observed for six 5-minute periods each day, divided into consecutive 10-second time intervals. This kind of observation work, like the ORACLE study, is extremely time consuming to conduct and process. Some measure of this comes from the total number of observation points – nearly 200,000 10-second intervals!

In summary, this exhaustive observation study showed that for the bulk of their time, children, even at this tender age, were busy and involved mostly in individual work in the basics of language and mathematics. Interactions with their teachers are predominantly businesslike and concerned with the basic areas of reading, writing and maths. (See Blatchford et al. 1987 for a full description.)

This Paper

The 1980 ORACLE study is of course rather dated now (as is the TCRU study). Since the ORACLE studies, there have been several other large-scale observation studies in the UK – e.g. the PACE study – and also a follow-up ORACLE study conducted 20 years later by Maurice and his colleagues. Since his time at TCRU, Peter Blatchford has also directed several large-scale studies which involved extensive systematic observation components. Looking over the data from these various studies suggests a number of trends over time, but as far as we know, there have been no systematic attempts so far to put the results of these and other main observation studies side by side, as the basis for examining changes over the past 30–40 years. This paper therefore takes the opportunity to draw together empirical data collected between the school years 1976/1977 and 2011/2012. As described below, this paper concentrates on the upper years of primary education (7–11 years), which in England was referred to as 'junior' school but more recently as 'Key Stage 2'. Given the need to compare across studies, we focus in this paper on relatively broad high-frequency categories relating to a pupil's interactions in the classroom. We focus on three things: (1) pupils' interactions with adults and whether these are in a class, group or one-to-one situation, (2) interactions with classmates, and (3) times when pupils where not interacting with anyone and no interaction took place.

We also add to the ORACLE results and those from previous earlier studies by capturing two recent changes to classroom staffing and pupil composition in the UK.

Pupils with SEN and Teaching Assistants

In the early 1980s, the English education system saw an extension in the range of children and young people identified as having special educational needs (SEN) educated in mainstream schools. A main catalyst was the recommendations from the Warnock committee report in 1978 into SEN (DES 1978), incorporated into the 1981 Education Act. The 1981 Act introduced a system of statutory assessment for pupils with the highest levels of need, leading to a 'statement' setting out a pupil's SEN alongside the provision required that is additional to, or otherwise different from, that normally available to children in mainstream settings.

There has also been a steady increase in the number of pupils with SEN who do not require a statement. Since 2003, these pupils have been categorised as either School Action or School Action Plus; the latter grading is given to children whose needs require a greater level of provision than those on School Action, but fall short of requiring a statement. The proportion of pupils with a statement being educated in English primary schools constituted 1.4% (58,535 pupils) in 2012 (DfE 2012), whilst the proportion of pupils with SEN on School Action or School Action Plus was 17.1% in 2012 (721,120 pupils) (DfE 2012).

Most observation studies do not separate out pupils with SEN. Two exceptions are the One-in-Five study (Croll and Moses 1985) and the Making a Statement (MAST) project (Webster and Blatchford 2013). A key motivation for this paper is the publication of findings from the Making a Statement (MAST) project, which updates the valuable research from the One-in-Five study which took place 30 years earlier and provides the second time point needed to make a comparison of pupils with SEN over time.

The increase in the number of pupils with SEN being included in mainstream schools has, over the last 15 or so years, been accompanied by a massive increase in the numbers of support staff, known as teaching assistants (TAs), learning support assistants or some other term, which we refer to collectively as TAs[1]. TAs presently comprise 32% of the primary school workforce. There are more than three times the number of full-time equivalent TAs working in primary schools compared with 1997: 42,000 vs. 134,000 (DfES 2007; DfE 2012).

Despite the profound nature of these changes, the current observation literature offers no clear sense of the trajectory of this change or how it fits with other observable changes in classroom pedagogy over time. This paper is therefore concerned with the way in which primary classrooms have been organised for classroom interaction over time and with the observable differences over time in the interactions of pupils with SEN, compared with pupils without SEN.

The specific research questions addressed in this paper are:

1. How have junior/KS2 classrooms been organised for teaching and learning over the last 35 years, in terms of the extent of interactions with adults (and whether in class, group or one to one)?
2. Do these experiences differ for pupils with and without SEN?

Methodology

Systematic Observation Studies

The method of data collection used the ORACLE study was systematic classroom observation. This approach has not been without its critics. Barrow (1984) specifically critiqued the methods used in the ORACLE study and sought to undermine the results by claiming they were obvious or logically necessary, missed important features of teaching, such as creativity, and important background pupil characteristics, such as home support. We are not aware that Maurice himself has argued against this critique though Croll (1986) certainly has.

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[1] In line with common usage, the term 'teaching assistant' is used to cover equivalent classroom-based paraprofessional roles, such as 'learning support assistant', 'special needs assistant' and 'classroom assistant'. 'Higher level teaching assistants' are also included in this definition.

Another more general critique has come from those who favour a more qualitative, interpretative approach. Delamont and Hamilton (1986) provided a strong critique of systematic observation methods, this time focussing in particular on the Flander's FIAC observation system (a relatively easy target not the least because it only comprises ten categories). The two best rebuttals of these criticisms are probably still by Croll (1986) and McIntyre and MacLeod (1986).

Our general take on these critiques is that systematic observation methods are very useful for certain well-defined research purposes. To a large extent, it has been criticised for not providing what it was never designed to provide. In particular it clearly cannot provide the nuanced, personalised and contextualised account of teaching and learning, and classroom life, that some understandably strive for. It can be valuable where activities are straightforward to identify, behaviours under observation are limited to binary categories, and frequency measures are a meaningful expression of the behaviour. From a more technical, measurement point of view, there can also be problems when systematic observation is used to provide measures at the individual pupil level, e.g. in studies that then look for correlations with pupil attainment measures. This is connected to difficulties in obtaining a stable, reliable measure for a given pupil, given variability between observations within pupils, and it may therefore be more reliable, justifiable and interpretable, to use the data, as in this paper, at the group level.

Selection of Studies

To address the research questions, we draw on work done by one of us (RW) in collating results from selected observation studies of junior schools (KS2, 7–11 years) over the past 40 years (see Webster in preparation). Even though specific studies have their own particular focus and have designed their own schedules, there are often key categories that will be broadly similar across studies. It helps that in some cases, the design of the observation procedure has its origins in a schedule used in a previous study; for example, the system used in the 1981 One-in-Five study is very similar to that used in the 1976 ORACLE study.

For the purposes of producing reliable results, it was necessary to select studies that had a similar design, deployed similar data collection and sampling methods, studied pupils of a similar age and collected data on similar categories of behaviour. A thorough review of the peer-reviewed literature was conducted in order to identify suitable studies for inclusion.

To be included, data from the studies had to be:

- Collected on pupils in Key Stage 2 (aged 7–11) attending mainstream primary or junior schools in England.
- Collected in schools in at least two geographical areas.
- As representative as possible of a national sample of pupils in terms of background characteristics (e.g. gender, ethnicity, not just one area, e.g. London).

Table 11.1 Systematic observation studies included in the analysis

Name of study[a] and data source	Period conducted	Schools *(n)*	Year group	Classes *(n)*	Pupils *(n)*	Pupils with SEN *(%)*
ORACLE, Galton et al. (2002)	1976/77	19	3–6	58	489	–
One in Five, Croll and Moses (1985)	1981/82	20	4	32	280	19
PACE, Pollard et al. (2000)	1993–96	9	3–6	18	54	–
ORACLE 2, Galton et al. (2002)	1995/96	14	4–6	28	600	0
DISS, Blatchford et al. (2009)	2005/06	22	3	22	164	35[b]
MAST, Webster and Blatchford (2013)	2011/12	45	5	48	199	24[c]

[a]*ORACLE* Observational Research and Classroom Learning Environment, *PACE* Primary Assessment, Curriculum and Experience, *DISS* Deployment and Impact of Support Staff, *MAST* Making a Statement
[b]20% School Action; 12% School Action Plus; 4% Statement of SEN
[c]100% Statement of SEN

- Collected on pupils whose activities/behaviour were representative of the average pupil experience.
- Restricted to data collected within lessons in mainstream classrooms.
- Lesson length observations.
- Complete across the category coding variables (see below).
- Collected using a time-sampling method.

In addition, data were included from studies that also collected data on pupils identified as having SEN, as well as on 'control' pupils, who reflected the average pupil.[2]

Though the number of pupils and lessons observed differed for each of the six selected observation studies, each study had a substantive dataset. Details of the sample sizes of each study, and the sources from which data were drawn, are shown in Table 11.1. Access to the original DISS project data allowed the preparation of analyses for Year 3 pupils, by separating these data from results on a range of year groups reported in Blatchford et al. (2009).

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[2] The 'control' pupil sample constructed for the analysis in this paper is composed of pupils who, by and large, had not been identified as having SEN. The control samples from the One in Five, ORACLE 2, DISS and MAST projects did not include pupils with SEN. The first ORACLE study did not distinguish between pupils with and without SEN, but collected data from a representative sample of pupils in each class. The sample for the PACE project was selected at random from each class list. SEN designation was not recorded, although teacher ratings classified pupils according to attainment: 7% low, 16% below average, 32% average, 29% above average and 15% high. Attainment is not a perfect proxy for SEN, but on this basis, PACE does appear to lean towards an attainment profile slightly above average.

Pupils with SEN

There were three studies that provided additional data on pupils with SEN. In the One-in-Five study, pupils with SEN were selected on the basis of teachers' identification of their needs. Only pupils with either learning difficulties or behavioural difficulties were included in the sample; pupils with only sensory or physical impairments were not included. The sample of pupils with SEN in the DISS project included pupils on the school's SEN register (e.g. those on School Action, School Action Plus and with statements) and was not restricted by SEN type. The SEN sample included in the MAST study, however, comprised only of pupils with statements for either moderate learning difficulties or behavioural, social and emotional difficulties. Although the MAST study sample is limited to pupils with the highest level of need, the categories of SEN are directly comparable with those from the One-in-Five study.

Category Variables for Comparison

The variables selected for comparison were common and consistent across all the observation schedules used in the chosen studies. Whilst each study captured data on different aspects of pupils' interactions and activities and contextual information about the classroom and/or lesson, all of them collected data on three 'social modes':

- Pupil interaction with adults (teachers and TAs) and the contexts in which interaction with adults occurred (i.e. as part of the class, group or one to one).
- Interactions with classmates.
- When no interaction took place.

These variables were used as the basis for a comparison of pupils' experiences over time and a comparison of the experiences of pupils with and without SEN.

Results

Data from the selected studies are shown in Table 11.2.

Pupil–Teacher Interaction

Results for pupils without SEN show that the overall proportion of time spent interacting with the teacher has more than doubled over the last 35 years (16–40%). Results from the most recent studies show that the main increase has been in

Table 11.2 Comparison of the classroom experiences of pupils with and without SEN

		Pupils without SEN						Pupils with SEN		
		Oracle	One in Five	PACE	Oracle 2	DISS	MAST	One in Five[a]	DISS	MAST
		1976/19777 (%)	1981/19882 (%)	1993–1996 (%)	1995/1996 (%)	2005/2006 (%)	2011/2012 (%)	1981/1982 (%)	2005/2006 (%)	2011/2012 (%)
Pupil and teacher	Class	12	23	24	21	44	35	21	36	30
	Group	2	3	2	4	3	2	2	3	2
	One to one	2	2	4	3	4	3	3	7	4
	Teacher total	16	28	30	28	51	40	26	46	36
Pupil and TA	Class	–	–	<1	–	0	1	–	<1	3
	Group	–	–	<1	–	2	1	–	5	5
	One to one	–	–	<1	–	2	1	–	9	13
	TA total	–	–	<1	–	4	2	–	15	20
Peer interaction		19	19	22	27	20	32	18	16	18
No interaction		66	53	46	45	25	26	56	23	26
Total interaction		100	100	100	100	100	100	100	100	100

[a]Croll and Moses (1985) present data for pupils with learning difficulties and behavioural difficulties separately. Here, these results are summed and the mean value given

interactions with the teacher as part of the whole class. Pupils spend three times as much time in class mode as they did in the late 1970s (35% vs. 12%). Although not shown in Table 11.2, we also know from the DISS study (and the earlier CSPAR study; see Blatchford 2003) that the vast majority of times pupils were in the whole class situation, their role was a passive one, listening to the teacher teach. In the DISS study, for example, we found that 87% of a pupil's interactions with a teacher were in 'audience' mode, i.e. listening to the teacher, and this would also include those times when pupils interacted with teachers in group and one-to-one situations (Blatchford et al. 2012).

The proportion of time pupils without SEN interacted with teachers in a group or one-to-one context has remained relatively unchanged over time.

Compared with pupils without SEN, those with SEN have experienced a less steep increase in the total amount of time spent in interactions with the teacher – from 26% in the One-in-Five project in 1981/1982 to 36% in the MAST project in 2011/2012. The proportions of time spent interacting with teachers in group contexts are broadly comparable with those observed over time for pupils without SEN. This also applies to the proportion of time spent in one-to-one interaction with teachers; though there are signs of an increase in the DISS study (7% of all interactions), this still constitutes a small proportion of total interactions with the teacher.

A comparison of results between the One-in-Five, DISS and MAST projects indicates that pupils with SEN now spend less time interacting with teachers as part of the class, compared with their non- SEN peers; in the One-in-Five study, interactions in the class were broadly the same for SEN and non-SEN pupils. However, the data from the MAST project in Table 11.2 actually understates just how much time pupils with the highest level of SEN spend in whole class contexts, as this table only reports observations made within the mainstream classroom. The study found that such pupils actually spent 25% of their time working outside the class (Webster and Blatchford 2013). As a proportion of all observations, whether made in or out of the classroom, we now find that interactions with the teacher in whole class contexts comprise just 22% of all observations. Not only is this markedly lower than pupils without SEN (35%), but it is proportionally similar to the 21% for pupils with SEN found in the One-in-Five study (21%).

The main message from the comparison of teacher–pupil interaction is therefore that the overall difference between the total amounts of teacher interaction experienced by pupils with and without SEN appears to be in terms of whole class interaction; compared with 30 years ago, pupils with SEN spend less time listening to the teacher teach than their peers. We return to this finding later in the discussion.

Pupil–TA Interaction

Since the late 1990s, the rapid rise in TAs in schools has increased the amount of adult interaction in primary classrooms. For pupils without SEN, interaction with TAs constitutes only a small part of their classroom experience (between 2% and

4% of all observations across the studies), with one-to-one and group interactions with teachers slightly outweighing interactions with TAs in similar contexts.

In contrast, interactions with TAs have become a much more significant part of the experiences of pupils with SEN. Results from the DISS and MAST studies show that interactions with TAs make up between 15% and 20% of all observations involving pupils with SEN. Importantly, more than half of these interactions occur on an individual basis. Overall, pupils with SEN, in contrast to their peers, have more interactions with TAs one to one and in group contexts and more than they do with teachers in the same contexts.

Peer Interaction

The results show that the amount of peer interaction involving pupils without SEN has increased over time, though this differs between studies. Between the One-in-Five and MAST projects, the proportion of peer interaction involving pupils without SEN has increased from around a fifth to a third. Interestingly there has been no change in the amount of peer interaction involving pupils with SEN over the same period and has resulted in a clear result: pupils with SEN in 2011/2012 experienced about half as many interactions with their classmates, compared to non-SEN pupils. We also return to this finding in the discussion.

No Interaction

Finally, Table 11.2 also includes results on when pupils did not interact and were engaged in independent activities. The trend over time is very marked. In the early studies, the pupils with and without SEN spent over half their time in the classroom not interacting, but over the mid-1990s, this had fallen to around 45–46%, and over the 2000s, it fell still further to around a quarter.

Discussion

Clearly we need to be very careful when drawing out conclusions based on data collected using different observation systems over time. However, the studies are broadly comparable and all comprised a large number of observations across a large number of classrooms and pupils. At the risk of overstating things, the results in Table 11.2 probably represent the most systematic picture available of the situation in primary classrooms in the UK at specific points in time over the past 35–40 years. An extra feature is that we have been able to identify differences in the classroom

interactions of pupils with SEN compared to those without SEN and interactions with teachers vs. teaching assistants.

Pupil–Teacher Interactions

So what have the results shown us? They show that time spent interacting with the teacher has more than doubled over the last 35 years and that this is attributable to an increase in interactions with the teacher as part of the whole class. This has also led to a much more passive role for the pupil, with much of their increased time with the teacher spent listening to them teach.

What might account for this change? As explained more fully in Webster (in preparation), a wider review of the research literature strongly suggests the changes are connected to the introduction of the National Curriculum in the 1988 Education Reform Act which despite many revisions continues to be taught in the vast majority of English schools. This conclusion was expressed in the second ORACLE study in the mid-1990s, where teaching delivered to the whole class had increased following the introduction of the National Curriculum, a finding echoed by the PACE project. McNess et al. (2001) also found that lessons at Key Stage 2 typically consisted of whole class teacher input followed by individual tasks; one-to-one interaction was rare.

The ORACLE and PACE study researchers were clear on the indirect effect of the National Curriculum on classroom pedagogy. Pollard et al. (2000) reported that teachers had 'with reluctance' adopted a different approach to pedagogy 'because of the amount of subject content and standards of attainment that were now required'. And after the second ORACLE study, Maurice Galton and his colleagues concluded that fitting the new statutory requirements into the school day placed 'too heavy an imperative on teachers to cut down the amount of pupil participation in order to 'get through' the curriculum content' (Galton et al. 1999). An additional influence, as found in the ORACLE and PACE studies, as well as others, is that the intense focus on national testing and examination results in core subjects has led to teachers in upper Key Stage 2 to devote more time to direct instruction and direct test preparation (Galton et al. 2002; Pollard et al. 2000; Harlen 2007; Tymms and Merrell 2007).

The most recent data from the DISS and MAST projects indicate that if anything this trend towards more teacher–pupil interaction has increased still further and that teachers now spend much of this time addressing the class and about a quarter of the time working with individuals and small groups (Blatchford et al. 2012; Webster and Blatchford 2013).

At the time of writing the Conservative-led coalition, government in the UK is predictably seeking to set in place heavily content-led curriculum reforms, along with a more 'rigorous' testing regime and a downgrading of course work and modular assignments. The earlier ORACLE study provides a salutary corrective to the changes demanded by Conservative politicians in the 1970s, based on careful observation of what was actually happening in schools. Interestingly, if anything, the first

ORACLE project showed a restricted, rather dull coverage of the curriculum, an over-reliance on unstimulating worksheets and, more impressionistically, an absence of flair in classroom interactions. It is difficult to gauge the influence of the first ORACLE study on policy at that time, but given the present government's well-known hostility towards educational research and the 'educational establishment', there are few reasons to feel hopeful that the trend towards pupil passivity will stop soon.

No Interaction

The results in Table 11.2 also suggest pupils overall now spend much less time on individual work. This general trend towards less time spent working independently might suggest that the primary classroom has become a more interactive, dialogue-rich environment, until we remember that much of the increase in interaction as we have seen involves passively listening to teachers talking.

Peer Interaction and Group Work

Peer interaction for typical pupils seems to have increased over time. However, observation studies conducted by Maurice Galton, and others, have shown that only a small number of these interactions involve truly collaborative peer group work activities (see also Baines et al. 2003). In contrast to pupils without SEN, we found that for pupils with SEN, the amount of interactions had not increased and that they now in fact far fewer interactions with peers.

These results indicate the degree to which pupils with SEN are now more likely to be separated from their peers, either through adult support or because of time spent out of the class. As discussed in our report on the MAST project (Webster and Blatchford 2013), this can result in something like a vicious cycle in that once a child is predominately assisted by an adult, it reduces opportunities for peer interaction, which in turn increases the dependence of the pupil on adult support, and the way other pupils perceive the willingness of the pupil with SEN to interact with them. Moreover, the potential interaction and group work pupils might engage in can be deliberately reduced because of a perception that the pupil with SEN has problems with peers and will not benefit from it.

Generally, what was striking in the MAST study was an absence of a systematic, deliberate, informed way of developing successful relationships between pupils, and this applied to non-SEN and pupils with SEN. Indeed, in the MAST study, we found that despite the fact that some pupils were specifically seen to be lacking social and interactive skills with peers, the main strategy adopted was for adults (often TAs) to conduct social skills interventions with such pupils. This seems to us a missed opportunity.

One of us (PB) had the great pleasure of codirecting with Maurice Galton (and Peter Kutnick) a large-scale study, funded by the UK Economic and Social Research Council (ESRC) Teaching and Learning Research Programme (TLRP), in which we developed with teachers across three sites (KS1, KS2 and KS3) a programme of collaborative group work activities and principles and then systematically evaluated its impact on pupil progress in English, mathematics and science, classroom inter- actions and pupil attitudes and motivation. Called the 'SPRinG' project, we found a clear positive impact in terms of both academic progress and productive classroom interactions with peers (see Baines et al. 2007; Blatchford et al. 2006; Kutnick and Blatchford 2013). The results presented in this paper suggest more still needs to be done to introduce this more interactive collaborative aspect, with proven benefits for learning, into UK classrooms today.

Teaching Assistants

The most up-to-date data from the DISS and MAST projects show the increased use of TAs has had a seismic effect on the pedagogical experiences of pupils with the highest levels of SEN. Up to a fifth of all experiences of pupils with SEN involved interaction with a TA, most of which occur on a one-to-one basis. Results from the MAST project suggest that this is particularly the case for pupils with statements of SEN, who are allocated TA support as part of the provision to meet their needs. These pupils had three times the amount of one-to-one interaction with a TA than with a teacher, whereas the reverse was true for pupils without SEN.

Compared with 30 years ago, when there were far fewer support staff in schools, the high amount of interaction pupils with SEN have with TAs in one-to-one and group contexts occurs at the expense of instances when pupils tended not to have any interaction at all. In other words, even allowing for any effects the National Curriculum appears to have had on classroom pedagogy, the opportunity for pupils with SEN to work independently (without interaction) has been significantly reduced over the last three decades.

Paul Croll (1996) worried that 'pressures to concentrate on the whole class and the class average would disadvantage' pupils with SEN. Such concerns have on the face of it been off set by the huge increase in the employment and deployment of TAs to give such pupils more attention. Hard-pressed teachers appreciate the arrangement, whereby the neediest pupils receive potentially valuable attention from TAs, whilst they focus on the rest of the class (Blatchford et al. 2012).

Another positive consequence of the extensive use of TAs can be seen by com- paring results from the One-in-Five study and the later MAST study on off-task and on-task behaviour. The One-in-Five study found (not shown in Table 11.2) that pupils with SEN were twice as likely to be not interacting and off-task/distracted, compared with pupils without SEN (15% vs. 8% of all observations). Yet, results from the MAST project found that this was only slightly more likely to be the case: pupils with SEN were not interacting and off-task/distracted in 8% of all observations, compared with 5% pupils without SEN. This finding is consistent with more anec-

dotal evidence from the DISS project which suggested that the presence of TAs in the classroom reduced the amount of off-task behaviour (Blatchford et al. 2012).

But the DISS study also found a very important negative consequence of the way that TAs are currently deployed. Careful multilevel regression analyses showed that those pupils with most support from TAs make significantly less academic progress than similar pupils with less or no TA support, and this after was controlling for potentially confounding factors like prior attainment and level of SEN that might be expected to be related to end of year attainment and support given by TAs.

The reasons for this finding are explained in detail in Blatchford et al. (2012). The first main reason is the way that the least qualified staff have, in effect, been assigned an informal primary remedial role with the pupils with the highest levels of SEN (Blatchford et al. 2012; Webster and Blatchford 2013). It is then, perhaps, not surprising that these pupils tend to make less progress compared with their peers. The second problem is the lack of training for teachers and TAs (relating to SEN and how to work together productively) and the lack of time for and quality of pre-lesson preparation as key factors in explaining the negative attainment results (Webster et al. 2011). Further evidence from the DISS project identifies a third key explanatory factor: the quality of classroom talk and instruction that pupils with SEN receive from TAs. Despite systematic observations showing that pupils had longer and more active interactions with TAs, TAs were more likely to supply answers and give inaccurate or misleading explanations and demonstrated a greater concern with task completion than learning and understanding (Blatchford et al. 2012; Rubie-Davies et al. 2010; Radford et al. 2011).

If, as many agree (Alexander 2006; Bakhtin 1981; Jones 2007; Nystrand 2006; Wilkinson and Silliman 2000), teacher-to-pupil interaction is at the heart of effective teaching and learning, then these concerns about the quality of pedagogy are likely to have more significance for pupils with SEN who require a form of pedagogical interaction that allows them to firmly grasping the fundamentals of literacy and numeracy – the key areas in which they get left behind.

A key message from the DISS and MAST projects is therefore that schools need to fundamentally rethink their approach to the way they provide support to pupils with SEN, and, in particular, reconfiguring the role of the TAs so they do not routinely support pupils with SEN, ensuring that the teacher takes on the primary responsibility for the planning and teaching of pupils with SEN (especially those with high needs), ensuring that TAs and teachers get time for pre-lesson planning and ensuring that more attention is paid to the classroom talk of TAs (see Russell et al. 2012).

In the UK and elsewhere, politicians refer endlessly to the concept – but often not the detail – of effective teaching, as they strive to emulate the best education systems in the world, prompted by their reading of the OECD's PISA rankings and other international comparisons. The study of teaching and what makes it effective or ineffective is of course an enormous area, and since the ORACLE studies, there have been a wealth of research following sociocultural, dialogic teaching and subject-specific approaches (see Blatchford et al. in press). Obtaining an accurate and reliable measure of teacher effectiveness in a systematic way is an important but notoriously difficult task. For example, in the UK, ratings from school inspection

visits by government-funded agencies are often used. Yet these ratings are almost certainly flawed, as judgements are rarely consistent between schools and highly susceptible to the observer effect. Recent work has been helpful in further identifying sound measures of effective teaching (Cantrell and Kane 2013). A lot has changed in education over the past 40 years, but there is clearly still a main role for systematic observation data on teaching, all those years after Maurice's pioneering work in the ORACLE studies.

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