

Learning to be Tested: Teachers and Pupils in Systems in the 1920s-1930s

Martin Lawn, Paper presented at ECER 2017

The history of testing often limits itself to the science of intelligence and the rise of selection in schools. Both these areas are very important but are too tightly drawn. Historically, there is a relation between the two ways of understanding the role of testing in society: they are written by psychologists [students of intelligence and factorial analysis] and by historians of education [students of schools and selection]. These often mutually disregarding ways have failed to interact and produce new questions about education and its interests. National interpretations may dominate the study of the subject; for example, in Scotland, with its highly developed testing culture, the main purpose of testing was to test the nation with a eugenic concern for national intelligence, as well as to enable poor, intelligent students to benefit society. Testing was not used so directly, as was the case in England, to create a new secondary school expansion for a new elite.

In this presentation, I want to bring into proximity with each other two ways of thinking about the value of tests, which have rarely been drawn into relation with each other, their use in industry and in education, and try to show how the history of education, that is of teaching and learning, was changed fundamentally. Testing was not just a classroom event, but a way of changing teaching – its order, relations and effectiveness.

The presentation focuses upon the actual practice of tests in the 1920s and 1930s. The practical operations of the test have been ignored in favour of their selective and comparative effects, and the context of the test [in this period] have ignored the workforce in teaching, the politics of the time and restructuring of work. The paper uses the initial commands provided in each printed test, in this case the Moray House tests, to create an order, a new classroom order, in which the teacher and the pupil are placed in a new relation. Testing had to be explained, its operations laid out in detail, and repeated regularly. The Manual for

the Tests tried to join the gap between the reliability of the test and the heterogeneous set of school practices they were to operate in. Each classroom, village or city school, each group of pupils, and teachers, had to be made to act as if they were exactly the same. Each school had to come into a general line, a way of working, a simulacrum of each other, which could be treated as a recognizable form of psychological laboratory, or that part of the lab dealing with experiment. In a sense, the test programme joined together the idea of a laboratory, crucial to the psychologists and their credibility, and modern forms of production, in which skill is appealed to but overridden by a discourse of efficiency and systematization¹.

In the UK, the extremely popular Moray House tests were produced from the late 1920s by a research laboratory based within the Moray House College in Edinburgh, supervised by a University Professor and College Principal, Godfrey Thomson. It is the important preambles to the MH tests this paper is based upon.

Changing Teaching and Learning

In addition to a new technical language, to be used in schooling and teaching, there are new related procedures also. Tests had to be administered, practice facilitated and marking organized. As the idea of testing children, and adults, is so widespread now, the necessity to order this change, manage its entry into schooling, and extract useful data for processes of administration, has lost its cutting edge today. This was a major insertion of new practices into schooling, involving new skills, training and the management of space and time. The test itself occupies only a small part of the effect, the organizing for the test the major part.

The development of the Manual of Instructions for the test shows how this process of ordering grew out of the logic of the test and the experience of its use over time. The tests are of three types, Arithmetic, English and Intelligence. Each of them begins with Instructions for Administration. The same sentence organizes begins each one.

It cannot be too strongly emphasised that the instructions which are set out in the following must be adhered to exactly²

The test has to enter schools which have their own time, ordered in their own or local ways, often disconnected from other schools, in which head-teacher judgment or teacher classroom autonomy may have allowed discretionary action and local work habits. Attempts to manage schools at a distance by inspecting timetables and pupil progress had to face similar questions about how to order schools at a distance. It is not surprising that the Manual of Instructions began to alter over time. The opening sentence remains the same between 1935 and 1937 but the term 'exactly' becomes italicized. Schools were not equipped mentally and materially to work with the precision required of them by Thomson via the tests. In the 1937 tests, a new section is inserted directly after the opening sentence. 'Great care must be exercised in the timing of the test'³ Test Supervisors, a new position in schools, must be provided with 'watches with second hands' and if a stopwatch is used, its accuracy must be checked against an ordinary watch. Precision in time and behaviour was required, and the Manual both specifies and demands actions to be taken in sequence.

The Practice test has not got any substantive pupil test function; it is not marked. Its purpose is to choreograph the actions of the supervisor and the pupils. They both have to learn what a Test is, how to behave, what to use and what to do.

The Test Supervisor, in a manner reminiscent of time and motion study, growing in importance at the time, is created and managed by a series of specific and detailed actions. Familiar actions for later generations of teachers and pupils are rehearsed here. The Supervisor begins by placing the Practice Test paper 'with the title pages facing the children' and they are to be warned not to turn the test over. The crucial details of the test and the pupil are to be recorded by the pupil under supervision. What may be described in an early Test paper as 'See that the title page is filled in properly', in later Tests this is turned into an encouragement to write on the blackboard a clear copy of the required

information. Both the 1935 Arithmetic and English Tests script the statements of the Supervisor

'I want you to look at the front page [Hold up booklet and point]

See where it says 'Read the following carefully'. I will read these rules of the test to you.

The last section is repeated then

Open your books now at Test 1. Take up your pencils and go on as fast as you can. GO

Then, in bold type, the Supervisor is asked to

Carefully note and write down the time when GO was said and write down also the time it will be in 4, 8, 12, 16, 23, 30 and 37 minutes later.

[In the English Test, it is 5, 10, 15, 20 and 27 minutes later]

This was crucial. The Supervisor had to say, at each of these intervals, 'Go on to Test.. at once'. This instruction had to be 'instantly obeyed' and the Supervisor had to 'walk round unobtrusively' to see if they were on the right section. In this way, the teacher learned a new tightly circumscribed role just as much as the pupils did. At the same time, as copying had to be avoided, as an 'evil', the Supervisor had to be vigilant there as well. These instructions became even more developed two years later. Two Invigilators were required now. The first faces the children, reads instructions, keeps time, and keeps the room under surveillance. Throughout this period, this Invigilator had to be vigilant and disciplined.

He should not permit himself to be distracted by callers entering the room, by talking to anybody, by reading the test booklet himself, or by attempting to do work of his own during the period.' [MH Test 24]

The second Invigilator 'should patrol the room quietly and unobtrusively. Alert and watchful, they observe and correct the labour processes of the test.

Carrying a set of spare pencils, to make sure the test is not interrupted, and needs to be repeated, this Invigilator

Should be on the alert to see that the children turn over the pages correctly, and that each child after completing one page goes straight on to the next without delay'

Watching out for 'blunderers', the watchful invigilator is able to indicate with the finger or a whispered word a clear instruction. Otherwise 'no assistance whatever is to be given' [MH Test 24 and MH A No 7].

Throughout the child is becoming testable. Becoming alert to the new conditions of schoolwork, they learn new rules on time and motion, on the order of things, on the individualization of work, and exact specification of work.

Pencils are crucial; each pupil should have two sharpened pencils and if they break, they have to raise their hand. They should not have 'rulers, India-rubbers, scribbling paper and pens'. They are unable to ask questions. Their Invigilators are under instruction to answer 'no question whatever'.

Marking the test is another new skill. Initially, ticks and crosses were used, each being placed in its own vertical line, later this was changed to dashes and crosses. A coloured pencil was best for marking. The most important requirement was that the 'Answer key must be strictly followed' even if there is some ambiguity in the answer. The need for accurate notation of the answers means that more 'advice' was offered about how to organize the marking of the test. The teacher or marker should 'memorise' the correct answers, a task made easier it was suggested, if they marked all the same numbered pages together [all the page fives, for example]. Again, when marking, it would be advisable to

Repeat [mentally] only the correct answers when comparing key and script' [MH Test 24, E 7,A 7]

Further advice on points to be awarded or deducted, how to deal with alterations and the total points available on each page are stressed; as is, the problem of correct answers provided in the wrong form, for example, in written form and not underlined as requested. In the latter case, in 1935, it was necessary to 'count the first five such answers wrong, and thereafter count them right' [MH E Test 2], and in the Intelligence Test, to give 'half marks for such items up to ten, after which to give full credit if the intention is clear and correct' [MH I 13]

In such a way, through the constant elimination of ambiguity and autonomy of decision-making, were the material and work aspects of testing inserted into school routines across the country. Standardisation of process and product needed a consistency, which the test layout and manual of instruction had to provide. Teachers learned their role through its operation, becoming familiar with the new routines of examination, the role of the invigilator and marker, the conditions of the test, often in counterpoint to their own pedagogical practice, and the layout of test spaces within the school site. Their mentality, or pedagogical thought, had to incorporate a new discourse, made up of a technical language of pupil descriptors and an administrative language of routines and relations. Time and space had to be harmonized across the school system, from the largest city elementary school to the smallest rural school, across local languages, and traditions of work. The schools had to act, together, as if they were one and the same.

The experience of the new testing system in schools meant that the training of teachers had to reflect the change of skill, order and mentality needed in the new teaching.

“ Under him [Thomson], Room 70 in Moray House became famous as the centre of experimental and statistical investigation in which successive teams of young men and women, students for the [new] degree of Bachelor of Education, were engaged. Their work in practical testing and mental measurement became famous throughout the world...’ Cruickshank p181

The Science and its new technical language

The Lab consisted of a small number of experts, able to communicate with each other through the special language of testing and intelligence, the joint production of tests and their processes of validation, bound by its Manual of Administration and its bureaucratic procedures, and skilled at manipulating statistical data. There were a number of related processes that MH tests involved; firstly, a regular line of reasoning about the high scientific quality

involved in their construction; and secondly, a detailed process of operation, regularly repeated. In his pamphlet on the Moray House Tests, Thomson emphasises the scientific quality involved in their preparation. They involved ‘the best experimental and statistical methods’ [p2] and the ‘best statistical methods’ [p3]; the ‘necessary skill, experience and knowledge’ [p4]

‘an educational laboratory which for two decades has been concerned with research into group testing will have accumulated much knowledge [about them]’[p4]

It is known what the proportions of each item ‘combined to give the highest efficiency of prediction’ [p5] of intelligence. Using tests in combination with school reports was possible but it ‘requires expert statistical advice to carry out adequately – advice which ‘Room 70’ at Moray House is glad to give –but it is a perfectly practicable procedure’ [p7]. This kind of laboratory, leading the knowledge base of testing, and producing and advising on the use of tests in education, was exceptional in its early years.

Thomson makes the relation between enlightenment and the tests in such a way that the MH Test can be seen as a beneficial tool. It was not intended to exclude teachers but work with them for the public purposes. Facilitating the entry of children who could ‘profit by an academic secondary education’ [p6], with the help of ‘enlightened Education Authorities’, would produce a new common good, unavailable to many previously. This process of selection of ability allows comparison to be made [between schools for instance] selects the ‘brightest children’ [p2]. Selecting for

‘different forms of education.. in the belief that individual happiness, and the good of the community, are both furthered if the kind of education and ultimately of life-work to which a child is directed are such as his [or her] inborn abilities enable him [or her] to cope with successfully’ [p3]

The tests would help produce a society where the right person would be in the most suitable job: Thomson was totally opposed to bright working class children being excluded from a good education, and wealthy children monopolizing good schools. To do this socially and personally useful work gave the ‘makers’ of the

MH Tests ‘much pleasure and satisfaction’ [p3]. To convince his audience, Thomson had to make the case for the reliability and the high predictive value of the tests. Throughout this text, he talks of ‘highest efficiency of prediction’ [p5], ‘very good prediction [p6], and ‘predictive power’ [p7]. Prediction of futures has moved from being a description of chance and class to a scientific fact.

Thomson argues that teachers can ‘act’ like trained psychologists, they can administer the tests if they ‘study beforehand the manual directions’ [p3]. All the science and skill is in the tests, states Thomson, and the teacher needs only to use their skills in ‘administration and marking’, indeed there is ‘no judgement on the part of the marker’ [p4], it is a question of ticking the correct box, the questions are ‘clear and inflexible’ [p4]. Even the marking of the tests can be simplified if the teachers work in teams of two, and focus upon a page per team; in this way, 10 or 15 tests ‘per hour per person’ can be checked [p4]. Indeed any number of markers can be used within this simple system, perhaps even non-teachers. A teacher ‘or a clerk’ [p5] can, by using a conversion table, ‘convert the raw score of a child...into a standardized score or intelligence quotient.’ In effect, Thomson created in the UK an industrial or Fordist method of production in which a move away from a one to one interview with a ‘trained psychologist’ is replaced by a system for managing ‘hundreds of thousands of pupils annually’ [p4]. The skill and knowledge of the psychologist is now embedded in the test, which is massively reproduced, and administered by relatively unskilled people. The release of this expertise needed a reliable system of operation, something which, even in a short explanatory pamphlet about MH Tests, he needed to explain. New terminology, such as ‘items’, ‘score’, ‘quotient’, reliability and validity, are added to the means of measurement and analysis, such as ‘standard deviation’ ‘least squares’, factorial analyses and ‘coefficients’. This is a new language, one recently communicated and adopted among Thomson’s peers in the growing international ‘community’ of intelligence testing. In turn, Thomson transmits this specialist ‘scientific’ terminology to a wider group, of educational administrators and teachers, who correspond with him about test anomalies and operational problems. Sometimes it is expressed

within the kind of test brochure discussed above, and at other times, in detailed letters sent to local authorities, explaining procedures and meanings.

Hostility to testing and the new order of the classroom they introduced, was partially overcome by reference to a modernization, connected to a social democracy characterised by fairness and equality.

Modernism in Teaching

Intelligence testing was associated with an 'efficiency in education' movement in the US. It was part of a wider scientific and educational movement there focused on changes in work and society, which was happening in the same period. Work and society was changing through the steady influence of efficiency methods in industry and business. In the US, the efficiency or scientific management movement [Taylorism] was involved in all aspects of the redesign of work. The development of the scientific management movement, involving task allocation, detailed curriculum control and text selection produced a new 'social relations of the production line'⁴. Applying logic, research and standardization, work was mimicking its leading edge practices and craft production was being replaced by mass production.

Tests appeared to measure pupil intelligence but they were doing much more – they were testing teachers and measuring systems through data. The practical purpose of the test varied with the context of the system they operated in.

In the US, where not only a local practice was occurring, but an international literature was being published about those local projects, testing was associated with order and efficiency.

Practically every city school research department is carrying out an extensive test programme and, judging from current literature, from city and state school reports, and from the reports of school surveys, beginning quite early in the survey movement, there are few city schools in which educational tests are not being used...[Sears p137]

'We measure cost, teaching efficiency, progress through school, success in studies, mentality, buildings, equipment, textbooks and attendance by

methods and devices almost unknown only a dozen years ago' [Sears p137]

'Active research departments are now organized in some fifty of our city school systems, each directed to quantitative studies to be used in directing school policy' [grading children and diagnosing instructional problems] [Sears p137]

This school movement was part of a wider movement in industry and work in the US. Taylor's Scientific Management system involved a 'science for each element of man's work' and a new managerial role in 'analysing, planning and controlling the whole manufacturing process *in detail*' [Callahan p27]. When operationalized, the system replaced the judgement of the employees by a system of laws, rules and principles developed by the management. The key tools of this approach were the stopwatch and the recording card but it could involve experiments and the use of advanced mathematical calculation. Practically, it involved choosing a skilled worker who could learn the new standardized elements of the job as a model for others. It involved a new managerial mission, to assign tasks, the completion of which depended on the financial incentive offered. This system needed a new set of specialized managers, especially within the planning department which combined the creation of data with the further codification and development of the jobs. While this system was taken up within the education sector, it operated more as a pressurizing discourse in which the demand for a measurable return on investment in schools were as likely to lead to cuts in provision than a system of reliable measurement of outcomes. Waste and efficiency, the watchwords of the scientific management approach, were applied to schooling as part of a larger attack on its failings.

In Callahan's view, the demand for efficiency and value in education assumed that social science was capable of applying advanced techniques to complex processes of production, like teaching, and that school managers themselves had the 'time or money for painstaking, thoughtful, thorough research' [Callahan p61]. But the trend toward standardized tests, school surveys, efficiency ratings,

building score cards, and 'elaborate' systems of records and reports [p67] were beginning to fill this gap.

In Scotland and England, these ideas of efficiency and value were associated with the new public services and the developing social democratic idea of the teacher, the education system and the state, beginning around the First World War. Its purpose was not about economic rationalization and efficiency but about the establishment of modern public services. For example, Sydney Webb¹, the Fabian socialist thinker, described the relation between a new government function of a 'systematic education', the large number and special knowledge of teachers and their claim to

"exercise a professional judgement, to formulate distinctive opinions upon its own and cognate services, and to enjoy its own appropriate share in the corporate government of its working life"²

In this description of the teachers taking 'an increased measure of corporate responsibility' for the running of the service, Webb was arguing for the co-optation by the state of a large and growing group of workers who had to be turned towards 'the entire community' viz.

" ... it is the duty of each profession to take the needs of the whole community for its sphere... it must claim as its function the provision of its distinctive service wherever this is required, irrespective of the affluence or status of the persons in need .. it must emphatically not regard itself as hired for the service only of those who pay fees and it must insist therefore on being accorded by public authority and where necessary at the public expense, the opportunity and the organisation that will

1 Webb, S (1918) The Teacher in Politics Fabian Society no 187.(The Fabian Society was a pressure group within the Labour Party for gradual social change).

2 Webb, S *ibid* p3.

enable this full professional service being rendered wherever it is required"³

It is this association with the emerging welfare services which probably affected teacher's work the most, not only with its prevailing sense of public service but in the nature of its labour process. For example, it has been argued that

"We built public services on the assumption of certainty for a world in which the problems faced were known and the challenges clear ... so we built services on a uniform basis, limiting choice, and we built an enclosed organisation that limited public access and public input in the process of decision-making"⁴

This service was organised by a clear link between fordist methods of production and the social democratic state i.e. "the idea of the standard product was given a democratic interpretation as the universal service to meet basic needs".⁵

Fordism is a way of describing a system of mass production to produce a standardised product, and it has these characteristics most associated with it: centralised planning, rigid organisation, redesigned and directly managed tasks, and scale economics of production. A consequence of this system was the way in which the work of the employees was arranged; it was characterised by a mental / manual divide between workers and managers, fragmented and repetitive tasks, hierarchical organisation and determined by rulebooks. Fordist production system was dependent upon a split between the managers and workers; in this sense, Fordism was incomplete in schooling because there was an element of work, common in the public services, in which the employees were the implementers of the social democratic ideal themselves. They were partly creators of the system, not just the employees of it. The modernist professional debate over the form,

3 Webb, S *ibid* p8

4 Stewart, John (1991) Meeting needs in the 90s; the future of public services and the challenge for trade unions` Institute of Public Policy Research

5 Murray, Robin The State after Henry Marxism Today (May 1989)

content and purpose of education was a debate teachers took part in and also created. In other words the system of production was a by-product of the social democratic reforms they began to support.

Conclusion

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The rise of testing in the 1920s and 1930s took place as a vanguard movement to the large-scale high stakes testing systems operating in and across countries today. A new form of teaching and classroom order was established through the operation of experimental methods and discourse, operating remotely across time and space in education. The scientific networking and production, which turned ideas of intelligence into a system of education management and selection, has its on interesting history of leaders and processes. It is rarely connected in these narratives to the wider movements concerned with post-war industrial redesign. Especially in the US, testing, school and work efficiency and redesign connected education and work closely together. Single standards of learning and production were being produced from tests.

The necessity to turn the scientific practices of the experimental laboratory into distance, classroom practices had major effects in the UK, even though there was a weaker Taylorist movement at this time. Teachers and learners had to work with precision in time and behaviour so that their work was comparable, and wider judgements could be made. Tests appeared to measure pupil intelligence but they were doing much more – they were testing teachers and measuring systems through data. A new method of working had been inserted into the classroom, and the practices and identity of the teacher and the pupil had been changed. New behaviours had been created and reinforced; the classroom order has been altered. Testing was not just an event, it was the introduction of a highly specified set of operation and relations – tightly managed and standardised across all schools.

The significance of the science laboratory testing work being replicated in the classroom has more often been introduced as a question of validity or of selection. However, viewed through the lens of the changing management of industry and work, it is possible to recognise correspondences and similarities between changes in work and control and teachers and pupils in classrooms.

Comparing the introduction of tests in different national systems, it might be possible to see differences between how teachers were conscripted or attracted to testing. UK teachers were expected to recognise testing as part of a social democratic modernization of society and education, in which they were to be given a partnership. Thomson, at Moray House, tried to convince teachers that the test was a beneficial tool for a fairer society, helping the intelligent poor.

¹ This paper is based upon data drawn from the ESRC Project 'Scottish School of Educational Research

² For example in MH Test Arithmetic Test No2, English Test No 2, Test No 13 etc

³ For example in MH Arithmetic Test No 7 and Intelligence Test No 24.

⁴ Callahan, R[1962] Education and the Cult of Efficiency) Chicago: University of Chicago Press.

Sears, JS Development of Tests and Measurements pp117-139 in Kandel, IL [1924] Twenty Five Years of American Education NY Macmillan

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