



DEPARTMENT OF EDUCATION

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RESEARCH BRIEFING

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EVALUATION OF RAISING SCHOOL STANDARDS INITIATIVE (RSSI) USING VALUE ADDED MEASURES OF SCHOOL PERFORMANCE

KEY FINDINGS

- ◆ There was an overall improvement in RSSI pupils' age-standardised performance during the period of the initiative.
- ◆ The evidence points to the existence of real differences among schools in Northern Ireland (NI) in terms of effectiveness.
- ◆ The pattern of value added results in RSSI primary and post-primary schools is fairly complex and multi-faceted. Only a few schools obtained a consistently positive or negative profile of results.
- ◆ For primary schools the four school characteristics that appeared to be significant for one or more outcome measures were single-sex/co-educational, size, location and School Support Programme funding. Similarly, for post-primary schools four school characteristics that appeared to be significant for one or more outcome measures were school type, size, location and School Support Programme funding.
- ◆ In the short-term RSSI appears to have resulted in a greater improvement in pupils' assessment results at the primary level in comparison to the post-primary level.

INTRODUCTION

1. The Department of Education (DE) Raising School Standards Initiative (RSSI) was a major school improvement initiative that started in September 1995 and continued until August 1998. This report focuses on a parallel project - the **RSSI Value Added** project - commissioned by DE to examine in detail the academic attainment and relative progress of pupils in RSSI schools. The first aim of the project was to assist schools in monitoring their success in the RSSI by providing teaching staff with confidential feedback information for the purpose of school self-evaluation. The second aim - and the main focus of this report - was to provide evidence of what are called 'value added' measures of school effectiveness to contribute to the overall evaluation of pupil progress during the period of the RSSI.

Sample of RSSI Schools

2. A total of 60 primary schools and 29 post-primary schools involved in the RSSI provided the sample for the **RSSI Value Added** project. The post-primary schools and their feeder primary schools were selected using a specific criterion of disadvantage in terms of pupil under-achievement. Therefore the detailed value added findings of the project can only be usefully related to this particular group of schools and may not be applicable in terms of the broader NI school population. Nevertheless, the lessons learnt from the project have implications for all NI schools.

MAIN FINDINGS

Pupil Achievement in RSSI Primary Schools

3. At the beginning of the project primary pupils' baseline attainment in reading and mathematics was below average in three out of four reading and mathematics measures. However, at the end of the project pupils' outcome attainment in all measures was almost average or above average indicating an overall improvement in RSSI pupils' age-standardised performance during the period of the initiative.

Pupil Achievement in RSSI Post-Primary Schools

4. In comparison to the primary results, a profile of underachievement was much more evident in RSSI post-primary schools than their feeder primaries. At the beginning of the project post-primary pupils' baseline attainment in verbal,

quantitative and non-verbal measures was lower than average (typically, by 0.6 standard deviation units). At the end of the project pupils' Key Stage 3 and GCSE outcome attainment was still below average. However Year 12 pupils' attainment in the core subjects of English, mathematics and science had slightly 'improved' to the extent that GCSE scores were a little closer to the NI average (typically lower by 0.5 standard deviation units averaged across GCSE English, mathematics and science¹).

Relationship Between Pupils' Prior and Later Attainment in RSSI Schools

5. At both the primary and post-primary level it was found that the fairly strong underlying relationship between pupils' prior and later attainment across the whole RSSI sample had broken down in some individual schools. Indeed, in contrast to what may normally be expected, it is a feature of the RSSI sample that the aggregated school level correlations between pupils' baseline and outcome attainment are frequently lower than the equivalent pupil level correlations. Moreover, this pattern of results appears to be more accentuated for the second pupil cohort involved in the project (cohort two) in comparison to the first (cohort one).

6. Thus, in some RSSI schools the majority of pupils achieved a fairly good (or poor) level of attainment in comparison to pupils in other RSSI schools - and this is especially likely for cohort two where pupil outcomes were assessed after the end of the RSSI. These findings point to the usefulness of a value added analysis to identify those schools where pupils are performing significantly above (or below) the expected level as well as the schools where improvement is evident from cohort one to cohort two.

Value Added Differences Between Schools

7. In line with previous work in the UK using more representative samples, there are fewer apparent differences between schools at Key Stages 1-3 in terms of the value added results, in comparison to the raw results. In other words, pupil prior attainment and background factors² explained between 56-87% of the differences between RSSI primary schools in pupils' reading and mathematics scores and between 35-72% of the differences between RSSI post-primary schools in pupils'

1 Equivalent comparisons for NI Key Stage 3 attainment are not currently available.

2 For example, sex, age and entitlement to free school meals.

Key Stage 3 attainment. However, in contrast, at Key Stage 4 the percentage of variance between post-primary schools explained by prior attainment and background factors was much lower than would normally be expected for GCSE outcomes (13-31%). In the case of GCSE science the percentage of school variance actually increased by 45%. Therefore, there appears to be only a relatively small reduction in the range of performance, if any, between RSSI schools' raw and value added results at Key Stage 4.

8. Clearly, having controlled for prior attainment and the other background factors there still remained a school effect at both the primary and post-primary level. In other words statistically significant differences were found between RSSI schools in terms of value added - that is the progress made by pupils in a school **relative** to pupils in other schools. At the post-primary level, for example, the value added results could be interpreted as a total GCSE score difference between the most and least effective schools of approximately ten GCSE points – once other factors had been accounted for (ten GCSE total points represents the difference between five GCSE grade B's and five GCSE grade D's). At the primary level, the results could similarly be interpreted as an age-standardised score difference of up to 13 points between the most and least effective schools – once other factors had been accounted for. These findings suggest that the best performing RSSI schools were likely to be approaching near to average or better results - in spite of a disadvantaged intake - during the period of the RSSI. The wider implications of these findings point to the existence of real differences in the effectiveness of schools in NI and the need for value added measures to be provided and evaluated for all NI schools, in addition to raw examination results, in order to allow fairer 'like with like' comparisons to be made between schools.

Within School Differences in Value Added

9. In line with previous research in the UK, the findings show that the pattern of value added results in RSSI primary and post-primary schools is fairly complex and multi-faceted. Categorising schools according to their performance across different value added indicators (subject or departmental measures; measures for different pupil groups, cohorts and curriculum stages) suggests that only a few schools – approximately 20% - obtained a consistently positive or negative profile of results. The broader implications of this evidence are that all primary and post-primary schools in NI should examine over time any possible differences in the relative or absolute progress made by different pupil groups, in different subject areas and at different curriculum stages.

Evaluating Improvement in Value Added Performance

10. For a small minority of schools statistically significant differences in value added were identified across the two cohorts examined. For these schools it would be especially helpful to carry out case study research to establish whether any significant improvements observed were due to RSSI or other factors within the school. However, further work is also recommended to examine the trends of **improvement** in schools' value added scores over a longer time period than the two cohorts examined in this report.

External Influences on the Value Added Results

11. The influence of external factors on schools' value added results was examined to investigate the impact of various school characteristics that are generally outside the direct control of school staff. These characteristics were: school type, size, location in terms of Education and Library Board (ELB), single-sex/co-educational, whether the school provided post 16 education (post-primary schools only) and whether further funding was available to the school to support RSSI aims after the end of the project (via School Support Programme (SSP) funding). For primary schools the findings showed that, after controlling for prior attainment and other background factors, four school characteristics appeared to be significant for one or more outcome measures (single-sex/co-educational, size, location and SSP funding). Similarly, for post-primary schools the equivalent findings showed that four school characteristics appeared to be significant for one or more outcome measures (school type, size, location and SSP funding).

12. Interestingly of the five factors found to be statistically significant, three were important at both primary and post-primary levels (school size, location and SSP funding). The implication of these results for all NI schools is that external factors relating to the organisation of schools, regional factors and the NI education system as a whole may play a significant role in the effectiveness of individual schools.

Evaluation of RSSI Feedback to Schools

13. Feedback information was customised for each RSSI school and fed back in four stages comprising summary, contextualised, value added and improvement results. The methods of analysis ranged from the presentation of raw scores and summary statistics to more sophisticated techniques involving multilevel modelling. The aim was to provide a variety of information to assist in strengthening teachers'

evaluation skills and their underlying knowledge of comparative data analysis (see Appendix 1 in the full report for further details of feedback to schools). The overall evaluation by principals of the RSSI feedback provided to schools was very positive - 97% rated the value added feedback as useful or very useful. However, a number of principals commented that further training and support is needed to assist teachers' interpretation of performance data.

Limitations of the Methodology

14. The limitations of the methodology used in this study are defined by the quality, reliability and validity of the data analysed. Issues such as measurement error and imperfections in the data are difficult to address and need to be considered when interpreting the results - particularly for individual schools. Moreover the findings are retrospective and may not necessarily be a good indicator of future performance. These caveats point to the importance of considering the statistical significance of individual school results, examining trends over time and using value added measures as one evaluation tool alongside a variety of other approaches. Local information about school or regional context is also needed to evaluate school performance given the difficulty of taking account of *all* relevant factors in the analysis.

Conclusions

15. The **RSSI Value Added** project has provided a new methodology for measuring value added in NI primary and post-primary schools and has demonstrated that schools, ELB officers, CLASS and DE officers can work together to collect the detailed data necessary for providing value added feedback information relating to all four stages of the NI curriculum. This evidence points to the need for further similar research employing data from all NI schools to clarify the findings in the broader NI context. Nevertheless, for both research and school self-evaluation purposes the **RSSI Value Added** project illustrates how detailed and sensitive interpretation of value added scores in a range of areas can provide a useful tool for examining school performance in a more realistic and meaningful way. However, of course, this kind of evidence needs to be contrasted and combined with a broader range of quality measures reflecting schools' educational and improvement processes to provide a comprehensive evaluation.

Implications of the Findings for all NI Schools

16. In the short-term RSSI appears to have resulted in a greater improvement in pupils' assessment results at the primary level in comparison to the post-primary level. This finding has implications for all NI schools in terms of the kind of improvement initiatives that seem to have a positive impact - or not - on pupil attainment, particularly in the short-term and in a context of under-achievement and disadvantage. However, in the long-term, it could be argued that the improved outcomes of the RSSI feeder primary schools may subsequently result in improvements of pupils' attainment in RSSI post-primary schools. Further exploration and clarification of this issue may have important implications regarding the particular need for longer term planning in relation to improved outcomes in NI post-primary schools.

17. The **RSSI Value Added** findings point to the usefulness of a value added analysis to identify those schools where pupils are performing significantly above (or below) the expected level and also, more importantly, to the existence of real differences in the effectiveness of schools in NI. This implies a need for value added measures to be provided and evaluated for all NI schools, in addition to raw examination results, in order to allow fairer 'like with like' comparisons between schools.

18. The **RSSI Value Added** findings also strongly suggest the need for all primary and post-primary schools in NI to examine their value added performance over time and in detail to identify any possible differences in the relative or absolute progress made by particular groups of pupils (such as high and low attainers), in different subject areas and at different curriculum stages.

19. Evidence from the **RSSI Value Added** project suggests that external factors relating to the organisation of schools, regional factors and the NI education system as a whole may play a significant role in the effectiveness of individual schools in NI. Clearly this important issue requires further research and clarification, especially in the light of the review of selective schooling in NI.

20. The overall evaluation by principals of the **RSSI Value Added** project feedback provided to schools was very positive. However, the broader implications of comments by principals suggest that a fairly substantial programme of further training and support is needed to assist teachers' interpretation of performance data.

METHODOLOGY

21. A total of 60 primary schools (including two infant schools) and 29 post-primary schools involved in the RSSI provided the sample for the **RSSI Value Added** project. Importantly these post-primary schools and their feeder primary schools are not a random sample but were specially selected using a specific criterion of disadvantage in terms of pupil under-achievement.

22. Value added measures control for the attainment of pupils on entry to a stage of schooling and are defined as the **relative** progress made by the pupils within a school, in comparison to pupils in other schools. Therefore, to provide useful comparative data, it was vital for all RSSI schools to employ the same baseline and outcome assessments for the selected Year Groups. Baseline assessments provide details about the entrants to a new stage of education, in this case, pupils in Year Groups 3, 5, 8 and 10. The outcome assessments are those assessments taken two years later with the same group of pupils now in Year Groups 5, 7, 10 and 12. In the statistical analyses a longitudinal design has been adopted by matching individual pupils' baseline measures to their subsequent outcome attainments in order to calculate schools' value added.

23. The RSSI testing schedule thus spanned four different curriculum stages. The assessments were administered by classroom teachers and marked by external assessors. The attainment data were subsequently collated by the CLASS project alongside other background information collected about individual pupils comprising their age, sex, entitlement to free school meals and mobility (estimated via number of months in current school). Information about each individual RSSI school was also collected comprising school type (maintained or controlled), size, single-sex/co-educational, location in terms of ELB, whether the school provided post 16 education and whether the school continued in the SSP after the end of RSSI.

24. This report focuses on the analysis of the baseline and outcome attainment data available for two RSSI pupil cohorts (who undertook the baseline assessments in 1996 and 1997 respectively). For primary pupils these data comprise the Suffolk reading test and the NFER mathematics 7-11 assessments. Pupils were tested at Year Groups 3 and 5 and then again two years later at Year Groups 5 and 7. For post-primary pupils the baseline assessments at Year Groups 8 and 10 comprise the NFER Cognitive Abilities Test (with sub-tests: Verbal, Quantitative and Non-verbal). The outcome assessments two years later at Year Groups 10 and 12 comprise the NI Key Stage 3 assessments (total levels score, English,

mathematics, science) and GCSE scores (total score, best five grades, English, mathematics, science).

THE PROJECT

25. The project was undertaken for the Department of Education by the Institute of Education, University of London. The cost of the project was £171,225.

REPORT

The full report entitled “Evaluation of RSSI using Value Added Measures of School Performance” by Dr Sally Thomas, Graduate School of Education, University of Bristol (formerly of the Institute of Education, University of London) is available from the Department of Education, price £5³.

This paper is a summary of the research report and as such any views expressed are those of the authors and not necessarily those of the Department of Education.

³ Each educational establishment and library is entitled to one free copy.

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