

# Aberdeen schools ILS investigation

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## Background and context

In recent years, Aberdeen schools have been using integrated learning systems. All types of schools have licences for the *SuccessMaker* system, some of them for some years (over 3 years and even longer in the case of national pilot schools). Although the courses used varies, they generally cover aspects of English language as well as mathematics; in most cases they are focused on aspects of the 5-14 curriculum and assessment programme. In primary schools, *RM Maths* has more recently been used, with a focus obviously only on mathematics elements of the curriculum

In terms of the reporting - elaborate in the case of *SuccessMaker* - there has been much evidence of general progress in the skills which are addressed by this approach

Across the UK, NCET (now BECTa) commissioned 3 research projects in the 1990s into the effectiveness of integrated learning systems such as *SuccessMaker*. The thrust of the NCET third report was that integrated learning systems demonstrated fairly clear gains in learning of those aspects which are rule-based (many aspects of mathematics, some aspects of language such as spelling) but that the benefits are more ambiguous when it comes to those aspects of learning which are associative (such as creativity in writing or interpretation in reading). These general conclusions are (largely) borne-out by other projects throughout the world

Aberdeen City Council has been a prime mover in the Scottish project called MIICE -

Measurement of the Impact of ICT on Children's Education. This has been concerned with adding to the sum of human knowledge in two main ways

- to try to articulate 'quality' in learning when using ICT, to make the observed benefits more transferable through being able to make targets and success criteria more concrete
- to extend the scope within which ICT use is impactful, to go beyond the particular skills implicit in 5-14 ICT guidelines and the Higher Still IT core skill

The conclusions from local, national and international observations therefore suggest that ILS is "promising with limitations" but that the longer term impact - on lifelong learning - is as yet uncertain. The strategy for the education service is to focus the benefits of the systems for maximum impact and to help professionals to integrate the contributions of ILS to enhance their effectiveness and to compensate for their limitations

This investigation was set up to try to assess the broader learning gains from (early) use of these integrated systems

## **The design of the investigation**

The purposes of the investigation were threefold

- 1 To look at the broader impact of ILS on the quality of children's learning, in all sectors, using a selection of the measures of quality in the MIICE toolbox
- 2 To explore systematically how teachers perceived the implementation of *SuccessMaker* and/or *RM Maths*, under a range of headings
  - installation
  - learning how to use the system
  - pace and choice for pupils
  - recording and reporting
  - best ways to use ILS
  - practical challenges
- 3 To look at the ease with which ILS integrates into the curriculum, related to some concerns in the NCET third report and other studies, including
  - extent of curriculum fit
  - the appropriateness of the teaching model
  - the impact of ILS in external measures of progress such as national testing
  - the impact of ILS on teacher confidence to use ICT for learning and teaching

Structured interviews of around 20-30 minutes each were arranged with up to 3 teachers in each of 10 schools, chosen to represent a range of factors (sector, social geography, school roll, length of experience with ILS, general ICT profile). In primary schools, the 3 teachers generally represented (1) a member of staff with an overall management responsibility for ILS (sometimes ICT Co-ordinator, sometimes support for learning, sometimes SMT); (2) a member of staff with experience of using *SuccessMaker*; and (3) a member of staff with experience of using *RM Maths*. In secondary schools, the

3 teachers generally represented (1) overall responsibility; (2) teaching of English language; (3) teaching of mathematics

A full list of the schools and staff who kindly co-operated is in Appendix 13. The team of investigators wish to place on record their gratitude for the warm welcome and co-operation which they received from all schools and busy staff, and their gratitude to head teachers for making the necessary arrangements

The interviews were conducted between September and November 2002. The staff who were to be interviewed were sent the questionnaire form in advance, to give them a clear idea of the purposes of the interview. The responses were recorded in a face-to-face interview. In many cases, there was both an immediate reactions element - where staff were asked to indicate their reactions along a progression from 'sceptical' to 'enthusiastic' - and an opportunity to articulate any comments. A record of the interview was sent to each member of staff to give them a chance to correct any misrepresentations

## **Lessons learned**

### **The impact of ILS on children's learning**

The following statements were adapted from the MIICE toolbox. They represent a broad cross-section of desirable learning which experience tells us can be enhanced through the proper use of ICT as part of learning and teaching

For each of these, staff were asked to indicate their reactions according to the following code

- 1 *Regression* - using the computers may have adversely affected the pupil's progress
- 2 *No change* - you have not seen any significant progress
- 3 *Some progress* - you have seen clear progress
- 4 *Marked progress* - you have seen surprising progress
- N No answer - could not say; no opinion; question not relevant

The reactions of those who did answer were averaged. A simple 'gap analysis' and a measure of divergency were also applied to this small sample. Here are the main results

Statement	Average	N/A
1 Pupils are able to carry on a programme of work over a period of time a high degree of retention of the information and learning gained in earlier phases of the programme	2.88	0
2 Pupils keep to the point of a project adding refinements on their own initiative	2.31	10
3 Pupils seek help from the teacher at important points of decision-making when using learning system software	2.82	4
4 Pupils spend little time in each learning session in getting under way with the tasks in hand when using the learning system software	3.38	0
5 Pupils adopt systematic approaches to putting things right when they go wrong using the learning system software	2.43	3
6 Pupils involved fellow pupils and the teacher sensibly in the rectification of any problems when using the learning system software	2.75	2

7	Pupils focus on the task in hand and avoid distractions when working with the learning system software	3.33	1
8	Pupils willingly try out new approaches in their work when using the learning system software	2.58	2
9	Teachers consistently promote care in the preparation of work using learning system software which overtakes the laid down criteria for success	2.69	10
10	Teachers create an atmosphere conducive to learners suggesting and trialling new approaches and worthwhile strategies when using learning system software	2.67	8

The sample which is involved here is small (26) and no 'absolute' meaning could be inferred from any of these averages. But it does permit comparison **between** the measures of the areas where teachers are confident that ILS promotes aspects of good learning and those where they remain sceptical

It is noteworthy that the number of N/A responses is generally higher where the average of those who did feel able to respond was lower, thus confirming the general scepticism about those aspects

The measures on which teachers are confident of the contribution of ILS include the following, all of which also attracted a high degree of consensus

Ability to carry on a programme of work with a high degree of retention [1]

Pupils are quick to get under way when they use the system [4]

Pupils focus on the task in hand and avoid distractions [7]

The measures which attracted the lowest average scores (and often high 'non participation') include the following

Pupils' ability to add refinements on their own initiative [2]

Systematically putting things right when they go wrong [5]

Pupils' willingly try out new approaches [8]

Teachers consistently promote high standards in the preparation of the work [9]

Teachers create atmosphere conducive to trialling of new approaches [10]

Except for the eighth element about trying out new approaches and the ninth element about promoting a high standards regime, there was a high degree of consensus on these. But even here, teachers were sometimes able to point to ways in which these systems - which are not designed to promote these important aspects of learning - can be useful. Please see Appendix 1 for comments from individual staff which illustrate some of the interesting twists to the overall picture - see, in particular, the first 3 comments under point 8

### ***Conclusions***

Integrated learning systems are good at promoting 'steady' aspects of learning - being methodical, being focused. But they are not generally best suited to offer practice in 'imaginative' or 'collaborative' aspects of learning, although teachers can make best use of these opportunities, here as elsewhere, if given help to identify and realise the

opportunities

## **Implementation of ILS**

### **Installation**

Interviewees were asked about their experience in installation of the learning system software. 46.2% of them indicated that this did not apply to them; the installation having been done either by another teacher or by someone from the Learning and Leisure Department

The general impression of those who did answer was that this was less than a blissfully straightforward experience

Appendix 2 contains the relatively few comments which were made about this aspect

The issues which were mentioned in this context - and occasionally under other headings - included

- Problems with operation over a (school) network
- The time involved in doing the installation and the time involved in adding all the names of pupils involved (and sometimes the end-of-year upgrading processes)
- Changes in personnel from those who undertook initial training
- Uncertainties about the configuration of SuccessMaker for British use (eg American accents, dollars for currency)

In addition, particular machines gave particular problems, such as the sudden and not at all evident disappearance of sound (noted in 2 schools)

The following comment, from a primary teacher working with SuccessMaker, summarises some of the issues

The machines for SuccessMaker were needed for other activities aimed at integrating into learning and teaching. There were network problems initially, which were largely resolved when they upgraded the switch to 100mbps; there are worries about the effect of adding more. There remain some recurring problems, like sound which suddenly disappears

### **Learning how to use the system**

There was a wide spread of responses to questions about the challenges in learning the software. But almost as many indicated that teachers were able to make good use of the software almost immediately as said that a little specialist training/induction was needed for each teacher

Those primary colleagues using RM Maths were decidedly more at ease than those working with SuccessMaker - average immediate reaction scores for the 8 teachers in each category were 2.25 for SuccessMaker and 3.38 for RM Maths - higher implies easier to get to grips with

Appendix 3 lists the additional comments which staff offered

The general conclusions which can be drawn from these responses and comments include the following

- Some forms of training are appropriately given before anyone starts to use the system;

but there is a need for continuing support later in the processes; getting the gap between the training elements right is a difficult process

- There is a (considerable) difference in knowing enough to get by and understanding the system's capabilities thoroughly; this applies not least to the extensive reporting within SuccessMaker
- Registration can be a tricky element, since it is normally done only once per year
- The process also needs understanding of the needs of the children, to get them started at appropriate levels; children also need to be training in its use
- The tutorial and the manual were both praised by some

A flavour of the range of issues is encapsulated in these comments, from a primary teacher working with SuccessMaker

You need time to become familiar with the package. You also need to be familiar with the children so that they can be entered at an appropriate point. Individuals need different amounts of training. I had too long a gap between initial introduction and full training. Onus on staff to train themselves in order to make best use of system. Managing and timetabling SuccessMaker can be a nightmare if you are not full time in a school. It can be difficult to choose an appropriate location when there is only one machine in a school

### **Pace and choice for pupils**

The fairly clear consensus was that the system was sufficiently flexible to meet the needs of most pupils most of the time (56% of those responding). Although some felt there were some instances where pupil activities were inappropriate

Appendix 4 lists the additional comments which staff offered

The general conclusions which can be drawn from these responses and comments include the following

- Those who had thought through the 'model' of learning which the systems represents (a minority) seemed to be impressed by the underlying purpose
- There were some instances where the approach was at odds with the approach used otherwise in the school (eg long division)
- There is perhaps not total consistency in the degree of challenge (eg between language and mathematics courses in SuccessMaker, or for spelling for those who are struggling)

The following comments, from a primary teacher working with SuccessMaker, illustrate the general tone of the comments

Sometimes the language or illustrations used can conflict with the way a topic is taught in class. This can cause problems for pupils of lower ability. Being able to specify particular strands can provide challenge for some pupils and appease parents who feel their child is not getting enough practice of a particular skill

### **Recording and reporting**

There was a wide range of opinion about the recording and reporting systems in these programs. Some were very enthusiastic while others were completely baffled about the

importance of the huge flow of reports which SuccessMaker in particular offers. Most schools were unaware of the 'mapping' of results from SuccessMaker against the 5-14 levels, while this is more clear cut for RM Maths

8.3% forms of reporting were sometimes obscure and often marginal to my needs

29.2% reporting was only sometimes useful to me

33.3% reporting was quite useful to supplement other ways in which I monitor progress

29.2% reporting system was a major benefit to me for monitoring pupil progress

There is some hint that the reaction to reporting in RM Maths is more favourable than the considerably more extensive reporting available from SuccessMaker - 8 primary teachers each averaged SuccessMaker at 2.75 and averaged RM Maths at 3.25 - higher implies greater usefulness

Appendix 5 lists the additional comments which staff offered

The general conclusions which can be drawn from these responses and comments include the following

- The considerable feedback which can be derived from SuccessMaker in particular may be a deterrent to at least some of the teachers; if the results were more immediately useful in terms of 5-14 progress, there would possibly be less of a feeling of being overwhelmed
- A number of teachers commented on the usefulness of the reports for corroboration in respect to 5-14, eg confirming that children are at the right level to sit a relevant national test
- Many commented on the considerable time involved in getting an understanding of the reports, but many of these implied or stated that such time would be valuably spent
- The reports from SuccessMaker appear to be of little value for reporting to parents; they are for professionals (and only those who have cracked the code); but the reports from RM Maths have been used by several schools to help to inform parents of their children's progress
- Some teachers were enthusiastic about the ways in which the recording and reporting could help them to pinpoint aspects of misunderstanding or misconception which they were honest enough to say might have been missed in other forms of classwork (eg the concept of 'one more' for a child in the early stages)
- In one school, the results from SuccessMaker had been incorporated into wider reporting mechanisms (using Excel generated graphs); but this was dependent on a member of staff with exceptionally highly developed IT skills (and interest)
- Several commented favourably on the record booklets which the pupils compile, and seem to value and to complete with considerable care

The following variety of comments illustrate the range of reactions to the reporting

A clear focus is needed to use the most useful forms of feedback; some reports are better than others. The systems help teachers to confirm their 'feeling' about gradings and about group classification [Primary teacher working with SuccessMaker]

The reports have proved very helpful for parents' evenings; there is paper evidence for

what the teacher knows (and there is no conflict with other feedback); parents are generally impressed [Primary teacher working with RM Maths]

The statistical and other reports cannot tell you about the degree of 'challenge' which the activities gave to the pupil; body language and monitoring only can tell you this, to supplement the reports. It is also useful to have the statistical reports for the parents and the pupils themselves [Secondary teacher working with SuccessMaker]

### **Best ways to use ILS**

There was no 'immediate response' element in this question, because of the myriad of possibilities. No two schools have an identical regime; variations covered

- the stages over which the system was running
- the pupils who are targeted: all pupils in a particular stage or range of stages; pupils who are struggling with basic skills; pupils who will benefit from being stretched; pupils with an IEP associated with social, emotional and behavioural difficulties who will benefit from the 'steady' approach of the software - and combinations thereof ...
- the relative extent of use of SuccessMaker and RM Maths
- the amount of time which the pupils concerned spent on the system and how it was organised: annual blocks of time to all through the year, highly structured to almost 'on demand'
- where the activity takes place: within the normal classroom or in specialist spaces (from rooms to corridors)
- the degree to which the system is supplemented by (additional) worksheets

The same facts can be seen as evidence of flexibility and local autonomy or as proof of shambles. The team of investigators is firmly in the former camp. Although these systems do not promote imagination as their most prominent feature, local autonomy has resulted in imaginative use - eg used to introduce new concepts with an interactive whiteboard in a primary school, or locally generated supplementary worksheets in a secondary school, or to calm hyperactive children in a special school. But not in all cases

Appendix 6 lists the comments which staff offered

Insofar as there are trends at all, the following conclusions may be tentatively drawn

- These systems are capable of a wide variety of use. Leaving decisions to those who have the overall responsibility for children's learning will generate more thorough learning than a formulaic imposition from the centre
- Some schools have invested heavily in hardware and software to develop the uses of these systems - laptops to relieve the pressure on the standard desktop computers; additional licences. Several commented on the value of centrally organised purchasing schemes to bring welcome discounts
- The best results appear to come - unsurprisingly - where the use of ILS software is planned as part of an overall provision

But there will always be variety and the unexpected: "School has many children with English as their second language and RM Maths is used to develop their language skills, with positive results"

## **Practical challenges**

Again there was no immediate response element to this question because of the variety of issues which were articulated

Appendix 7 lists the comments which staff offered

Among the many particular issues which were raised, the following were recurring (though none was universal)

- Interruptions to normal service - for whatever cause including wrong log in, network or individual machine seizure, or visits to the loo for infants - can take time to sort out and children lose the credit for the work they have done since no record appears to be taken of those activities undertaken during an interrupted session. Some are suspicious of where the system resumes after they get a system message (SuccessMaker)
- Headphones can occasionally give problems, including - bizarrely - being chewed by children while they are trying to work out answers in particularly challenging activities (at least demonstrating their motivation). Those schools which have invested in reasonably robust headphones appear not to have experienced this problem
- Connected to the headphones issue was the recurrence of disappearing sound; in one school, they found that shifting the connection from the socket on the back (standard) to the one on the front sorted out the problem (although there was no logic to that); this sort of illogic does not help teachers to feel reliant on these systems. Perhaps a centrally generated 'help sheet' about things to try when sound vanishes would help
- Time is needed to interpret the results, both the records and the more formal reports on progress. Perhaps a plain teacher's guide to making the most of ILS reports, linked to familiar measures of progress from the 5-14 programme, would help teachers to focus on those reports which are most beneficial. Although this is covered in the initial training, not all users attend this and much of it means much less to novices than it will after the passage of time

## **Integration into the curriculum**

### **Extent of curriculum fit**

There was a generally favourable - and consensual - reaction to the question about the extent to which the learning system software provides contexts which integrate well with the curriculum which represents the pupils' overall learning experiences, with 68% of those agreeing that the learning system software is adding breadth or depth to understanding of the concepts clearly within the curriculum

Appendix 8 lists the additional comments which staff offered

Again, there was impressive evidence of the enterprise of teachers to make the most of the software, including the following

- the use of whiteboards to conduct direct teaching lessons in a primary school using RM Maths
- the creation of additional accounts for existing pupils which are configured to provide activities focussing on a particular range of skills in a primary school using SuccessMaker

- integration into interpretation activities in English teaching in a secondary school using SuccessMaker

It would be useful to provide some means by which this best practice could be demonstrated and relayed to others - newsletter, website, video recording may all be helpful

The following comment, from a primary teacher working with SuccessMaker, typifies the positive and imaginative approach to the use of the integrated system software to enhance learning

It fits well into the curriculum, perhaps especially for the brighter ones and for introducing new topics and giving rapid practice. Some at least of the problem solving activities can be collectively done; this had happened a few times when children brought a problem back and they all went over it

### **Appropriateness of the teaching model**

There was also general enthusiasm for the teaching model - in terms of feedback, the way in which the software breaks the learning down into appropriate elements, intervention, support and praise, with a majority of respondents (52%) agreeing that the learning system software supplements the range of methods of learning used in the classroom, although a substantial minority (36%) thought the learning system software is generally helpful for the pupils, with some excellent features and others which I do not like

Appendix 9 lists the relatively few additional comments which staff offered

The general tenor of the remarks and discussion when this issue was met that it would be quite wrong to expect that a single piece of software would contain all that could be called a curriculum, which is a far broader range of experiences than a formula - however subtle - could ever provide to the young learner. Teachers were positive about quite small but important elements of the benefits of using SuccessMaker and/or RM Maths, including

- pupil motivation: they like it; they work hard at it; they keep trying when they might give up in other contexts
- young children are evidently motivated by a sense of achievement, which some schools and teachers build on with stickers, wall boards for achievement (defined variously)

The following comment, from a teacher in a special school using SuccessMaker, gives a flavour of the positive reaction to the teaching model

It's like having another assistant in the classroom. It forces concentration on a task – for 20 minutes the computer directs their work

### **The impact of ILS in external measures of progress**

The majority reaction (62.5%) was that it is too early to be clear about an improvement in tests which stand outside the assessment built into the integrated learning system. There were many more who indicated that there is as yet no evidence than those who indicated that there is evidence of considerable improvement in performance in other measures of progress

Appendix 10 lists the relatively few additional comments which staff offered on this

theme

There were some who were willing to attest to real improvements and to affirm their belief in the value of the integrated learning system software, including

- improvements in spelling at Standard grade in a secondary school using SuccessMaker
- confirmation of progress helpful teachers to decide when to submit children for 5-14 national tests
- some feeling that it may help (faster learning) children to become more independent in their learning (eg in dealing previously unseen challenges)

But some pointed out that it is never straightforward to isolate the contributions of ILS - SuccessMaker and/or RM Maths - from the impact of other things which were mentioned as contributing to improvements in performance

The following comment, from a primary teacher experienced in using both SuccessMaker and RM Maths, illustrates a positive reception

RM Maths and SuccessMaker are allowing children to focus their attention on one activity without outside distractions. These children experience particular difficulty in this aspects of their learning both in school and in the home environment. In an area of deprivation like this, ILS is one of the solutions to the problem of poor and limited experience

### **The impact of ILS on teacher confidence to use ICT**

In the nature of things, the group which was interviewed may have represented a more confident group of computer users than is typical of all school staff. But there were certainly some teachers who were not experienced users of computers. A few of the teachers declined to answer but two-thirds of those who did respond agreed that "I have gained useful experience of using computers which I hope to translate into other activities using the computer" and a small number was very enthusiastic indeed

Appendix 11 lists the fairly few additional comments which staff offered on this theme (in addition to several comments associated with their own experience)

A number of respondents felt that it had been helpful to colleagues who were previously limited users of the computer. No-one seemed to think that their experiences of the use of the systems had put back their own or colleagues' progress

### **Additional comments**

A number of summative comments - some of them reinforcing points which had been mentioned elsewhere in the structure - were offered by some of those interviewed. These - very varied - comments are listed in Appendix 12, without further interpretation or comment

### **Future actions**

#### **1 Support and training implications**

- There are evidently some technical issues which still offer challenge to many schools, especially where the software operates across a network. The investigation has thrown up a range of these which might be addressed through support channels - websites, old-fashioned sets of notes, any collective planning

undertaken by those with responsibility for support for learning. Appendices 2 and 7 in particular list some of the problems which have been identified by schools. These include issues like installation/configuration to ensure British voices and currency symbols, the disappearing sound syndrome, what to do to credit the pupil when a machine appears to 'hang', perhaps guidance on use of headphones

- The updating of information is evidently a demanding task for many schools, both to add more pupils to the register and to pass on the information from primary schools to associated secondary schools. This has been a valued element of the support framework in the past (eg within the former Linksfield Academy cluster of schools) and the practicalities of restoring this service would be worthy of further investigation, which could also be helpful in addressing some of the technical issues alluded to above
- The pedagogical potential of the systems is evidently not being fully exploited in all establishments. Some were unaware that SuccessMaker can provide clearer mapping to the 5-14 curriculum and assessment programme. Many staff evidently see ILS solely as helpful practice tools and are unaware of the imaginative ways in which elements of the programmes can be used to introduce, illustrate and/or consolidate new topics in learning (eg in mathematics), perhaps in conjunction with a whiteboard and data projector
- The reporting which both systems can offer are potentially valuable but are seen as daunting by a large proportion of those who might benefit. This highlights the imperfections in the standard training arrangements, which appear to 'pile in' the aspects of knowledge of the system in advance of use, when it will mean rather less than it might after a passage of time in operation. Perhaps a more localised and therefore more sensitive support pattern would provide more confidence among those in schools charged with responsibility for development of the resource

## 2 An evaluation of the process would be interesting and useful for informing discussion about the action research and evaluation dimensions to the work of the education service in Aberdeen schools. This would include some of the following

- the value of the adaptation of MIICE quality framework measures of quality
- the validity of the purposes of the investigation, to measure learning gains but also to find the limitations of the form
- the choice and management of the sample
- the value of the face to face interview
- the contributions of an outside investigator working as part of the team
- the value and appropriate formats of reporting

## 3 Possible future investigations

- The feeling of the investigators was that the questions were relevant ones and were useful in helping staff concerned to think about the ways in which their integrated learning systems contribute to the learning of pupils. As such a sub-set of the questions, without the time consuming face-to-face interview, might itself prove to be a useful means of highlighting the main issues

- Comparisons with the use of the Plato software which is about to be used for adult basic education and may be used on a trial basis in some Aberdeen schools might be in order
- A straightforward repetition of (aspects of) this investigation after the passage of further time could be useful, to provide a longitudinal comparison to determine if maturity brings relatively greater learning gains
- One aspect - considered for the current investigation but deferred - might be worth bringing back into a future investigation would be to try to identify the forms of 'knowledge' which are represented within the learning system software and to try to assess the extent to which these reflect that which is covered by other means within the curriculum. This might include any cultural assumptions (of race, class or gender) which could impede pupils' understanding; terminological differences; and if the definition of "to know" which the software implies is sufficiently rounded to be transferable. This very ambitious perspective arose from the third and final report on ILS which was published by NCET (now BECTa)

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18 December 2002

## **Appendix 1 - learning using the computer**

The following comments were made by staff in interviews and have been grouped in response to the various statements about quality of learning

- 1 Retention of learning over extended period
  - because the scheme involves a quarter of the year in each of P5 and P6, there has been some delay in getting back in the swing on the part of those P6 children who have not looked at the system since October last year (when they were in P5) [Primary; SuccessMaker]
  - difficult to be certain because each session is a mixture of different items; children seem to be better at some types of activity than at others (as you would expect) [Primary; SuccessMaker]
  - this seems to apply even to previously poor spellers [Primary; SuccessMaker]
- 2 Keeping to the point but add their own refinements
  - these are 2 separate things: keeping to the point (yes); refinement (N/A) [Primary; SuccessMaker]
  - the system is prescriptive about the way in which something is done; there have been problems with long division because it approaches it in a different way from that which is taught in the school [Primary; SuccessMaker]
  - the system does not encourage initiative [Primary; SuccessMaker]
  - there is no opportunity for using initiative - the program does the thinking for them [Primary; RM Maths and SuccessMaker]
  - there is not much opportunity for pupils to add their own refinement [Primary; RM Maths]
  - SuccessMaker does not permit initiative [Secondary; SuccessMaker]
- 3 Getting help from the teacher at points of decision making
  - this varies a lot from child to child [Primary; SuccessMaker]
  - most activities do not need outside intervention; the pupils are guided by the program itself [Primary]
  - the system is closed and decision-making is not common [Primary; RM Maths]
  - this is true only for certain screens which the children find more difficult [Primary; RM Maths]
  - SuccessMaker ... does not have many points at which decisions have to be made; the model makes the decisions for the pupils [Secondary; SuccessMaker]
  - important to limit the amount of help or results are skewed [SEN; SuccessMaker]
  - depends on individual [SEN; RM Maths]
  - within a special school, this can vary widely between individuals [SEN; RM Maths]
- 4 Little time wasted in getting under way
  - changing discs can cause a problem - finding the discs, reading the labels etc [Primary; SuccessMaker]
  - would rate SuccessMaker as 4 in this regard [Primary; RM Maths]
  - the children ask staff when they have a problem [SEN; SuccessMaker]

- 5 Systematic approaches to putting things right
  - the able children are able to do this [Primary; SuccessMaker]
  - resolving issues does not arise; the computer does it for them [Primary; SuccessMaker]
  - pupils should be supervised so that support can be available as required [Primary; SuccessMaker]
  - the system does this for them [Primary; SuccessMaker and RM Maths]
  - pupils just get on with it [Primary; RM Maths]
- 6 Pupils involve fellow pupils and the teacher
  - there is little consultation with peers; but there has been a formal buddying system at introduction time (P7 helping P6) [Primary; SuccessMaker]
  - both the teacher and other pupils are involved [Primary; SuccessMaker]
  - the computer is located outside the classroom and therefore there is no opportunity for the children to engage any other individual in the process [Primary; SuccessMaker]
  - there is a rule that they ask the teacher and not other pupils (to avoid distraction) [Primary; RM Maths]
- 7 Pupils focus and avoid distractions
  - it depends very much on the child; the setup is in a (very) public area and some children are able to concentrate right through it all but others are not [Primary; SuccessMaker]
  - the system does not really permit children to be distracted [Primary; SuccessMaker]
  - initially this was even more true; the children have become a little 'blasé' [Primary; SuccessMaker]
  - headphones prevent distractions [Primary; SuccessMaker]
  - the headphones help them to focus; the time period for sessions was cut from 15 minutes to 10 minutes [Primary; RM Maths]
  - this is very much dependent on the particular pupils; there is variety [Secondary; SuccessMaker]
  - depends on individuals – there is progress considering the difficulties the pupils have [SEN; SuccessMaker]
- 8 Pupils willingly try out new approaches
  - it can help them when they tackle the new area in the classroom - eg long division - even though the system does not offer new approaches per se [Primary; SuccessMaker]
  - everything is new after 3 weeks in P1 ... [Primary; SuccessMaker]
  - more children seem to be more willing to try things if they have met a related activity during SuccessMaker sessions [Primary; SuccessMaker]
  - new approaches are really beyond the system [Primary; SuccessMaker]
  - depends on child - children need confidence and recall to try new approaches [Primary; SuccessMaker]
  - the use of ILS software does not itself permit new approaches; but there may be

some knock-on effect when children approach the new activities in the classroom [Primary; RM Maths]

- although the system itself does not encourage new approaches, the use with a whiteboard for direct teaching can be very good for introduction of new things [Primary; RM Maths]
- not enough time has elapsed to give a true judgement [Primary; RM Maths]
- SuccessMaker does not really permit innovation in approach [Secondary; SuccessMaker]

9 Teachers promote high standards

- cannot really answer; part of the school culture generally to expect high standards at all times [Primary; SuccessMaker]
- there is not much preparation for teachers involved, unless using the SMART board [Primary; RM Maths]
- teachers' involvement increased as they saw the benefits [Primary; RM Maths]

10 Teachers create an atmosphere where trialling new approaches is encouraged

- teachers can support by referring to previous examples which the child has done [Primary; SuccessMaker]
- the software is in control; there is no need for teacher intervention [Primary]
- using the system allows pupils to do things differently [Primary; RM Maths]

## **Appendix 2 - installation**

The following comments were offered about installation issues

- Set up by Paul from Summerhill Education Centre; commissioning (including registration of around 120 pupils) by [Name]. There are 5 licences; it had been piloted on a single machine for 2 terms prior to general introduction. Much help needed from Andy Watson at Summerhill; some of the problems are down to network use and they are 'too frequent' [Primary; SuccessMaker]
- Current P7 teacher attended the RM course; but school uses the system only in P5 and P6 [Primary; SuccessMaker]
- SuccessMaker needs access to a printer for the reports [Primary; SuccessMaker]
- The machines for SuccessMaker were needed for other activities aimed at integrating into learning and teaching. There were network problems initially, which were largely resolved when they upgraded the switch to 100mbps; there are worries about the effect of adding more. There remain some recurring problems, like sound which suddenly disappears [Primary; SuccessMaker]
- Time consuming when fitting in to 'normal' workload [Primary]
- The installation of RM Maths was done by self; there are 6 licences and it was not a problem after the first one was done. Some time was needed to explain to staff [Primary; RM Maths]
- For no obvious reason the system was sometimes showing 2 scores (different) for each pupil; after re-installation, this problem appears to have gone away [Primary; RM Maths]
- Some minor problems with the extension materials which were quickly resolved [Primary; RM Maths]
- No major difficulties - there is a series of handouts (prepared by [Name]) which deal adequately with any of the issues which commonly arise which might give problems [Secondary; SuccessMaker]

### **Appendix 3 - Learning how to use the system**

The following comments were offered about the issues associated with learning how to make use of the learning system software

- The training came too late for the first use of the system; [Name] fiddled about for about 6 months and this was not always the most efficient way to learn. The reports are the most challenging part for newcomers. There is a good tutorial. Further training to make use of the full potential of SuccessMaker is needed. The new head teacher is attending a course in November on interpretation of the reports [Primary; SuccessMaker]
- The last couple of years have been done using the pre-registered children; but there are challenges with having to add new children to the system. The registration process is “quite tricky”. There is a problem about how to correct the currency representation (now showing as dollars) [Primary; SuccessMaker]
- Good initial training but not enough time to put it into practice. When registration is only done once per year, it takes time to remember how to go about it. Exploring and mastering the options in SuccessMaker takes a lot more time than they have [Primary; SuccessMaker]
- 3 teachers went on the RM course for SuccessMaker, which was a good induction although there was a lot which will not be used on a day-to-day basis (and was so acknowledged by the trainer). A focus on the most important reports and other forms of feedback is important, else you risk getting too much information [Primary; SuccessMaker]
- You need time to become familiar with the package. You also need to be familiar with the children so that they can be entered at an appropriate point. Individuals need different amounts of training. I had too long a gap between initial introduction and full training. Onus on staff to train themselves in order to make best use of system. Managing and timetabling SuccessMaker can be a nightmare if you are not full time in a school. It can be difficult to choose an appropriate location when there is only one machine in a school [Primary; SuccessMaker]
- Pupils had to be trained as well [Primary]
- I felt that I needed considerable training to feel confident. There are still issues I need to resolve. A waiting list for technical help is not ideal [Primary]
- Knowing what to do to set the system up, what are the expectations of the pupils and how to integrate the system into a busy day in an infant classroom are the main things that teachers need to know (before they begin) [Primary; RM Maths]
- The manual is good for dipping into. I had no problems with the reporting back features [Primary; RM Maths]
- An hour of local induction for RM Maths only; more time is needed to explore the options to gain a better overview [Primary; RM Maths]
- Some time was spent with each teacher to give them an overview of the package [Primary; RM Maths]
- Once system was set up there were few problems [Primary; RM Maths]

- Some problems with transfer of data between computers at end of session - mainly due to the fact that all computers had not been upgraded to v4 [Primary; RM Maths]
- RM Maths is easy to get to grips with – most teachers are self-taught [Primary; RM Maths]
- Considerable prior experience of computer use, giving no fear of failure [Secondary; SuccessMaker]
- Some teachers (including self) attended the initial RM training, which was good; thereafter the cascade model for in-house delivery to colleagues seemed to work well [Secondary; SuccessMaker]
- Learning to help pupils with the activities was perfectly straightforward. But it took a little time to get the full picture of the management system and the forms of reporting which the system offers [Secondary; SuccessMaker]
- After initial training, time is required for teachers to become familiar with the software [Secondary - 3 teachers; SuccessMaker]
- Training is required to make best use of SuccessMaker [SEN; SuccessMaker]
- Easy, even for a computer novice like me [SEN; RM Maths]

## **Appendix 4 - pace and choice in learning**

The following comments were offered on the appropriateness of the pace and choice available to pupils

- There has been a problem with long division in that it is approached in SuccessMaker in a different way from the approach in classes. There are problems with the voice which is sometimes (often) quite difficult for the children to understand. Although they have set up all the children as '2 UK' they get American voices and dollars for currency - and don't know why [Primary; SuccessMaker]
- For the interview, the teacher held a consultation with the group of (8) children currently working their way through the activities and got some interesting reactions. Some of the children thought that a lot of it was "difficult" even though the feedback is telling the teacher that they are coping. She has a suspicion that the poorer ones are finding it harder [Primary; SuccessMaker]
- Spelling Skills does not appear to begin at a sufficiently early level (grade of 2.0 plus). The accent is not always clear to the children and there is a suspicion that this is affecting scores [Primary; SuccessMaker]
- The model/algorithm seems to be about right in terms of pitch. They have used the SuccessMaker material with children from the school's SEN (MLD) base, although it needs careful teacher help; they had some striking successes with parts of this (eg spelling). Teachers need to check carefully that street-wise children are not just 'clicking through' the programme and so avoiding those areas where they remain weak [Primary; SuccessMaker]
- Sometimes the language or illustrations used can conflict with the way a topic is taught in class. This can cause problems for pupils of lower ability. Being able to specify particular strands can provide challenge for some pupils and appease parents who feel their child is not getting enough practice of a particular skill [Primary; SuccessMaker]
- If the children meet problems, they can revisit and it gives them more practice. It helps the teacher to pinpoint particular difficulties [Primary; RM Maths]
- Generally excellent for RM Maths (used P2 through P7). Doubtful for SuccessMaker (used only in P5 and P6 - single licence) [Primary; RM Maths]
- The diagnostic test works well and starts pupils at an appropriate level [Primary; RM Maths]
- Some pupils find the activities contain too many that are too easy. There is a general impression that the maths activities (in the element which comes from Maths Concept and Skills) is harder than the English element (from Reader's Workshop) [Secondary; SuccessMaker]
- For some pupils the pace is too slow. Pupils can see the same questions if they do not complete a session for any reason. The Spelling Skills course starts at too easy a level. Some pupils have completed Reader's Workshop and have been enrolled on Reading Adventures. In Reading Adventures the Skillbuilder sessions can be intrusive [Secondary; SuccessMaker]
- After the Initial Placement Motion, S1 and S2 pupils were usually working on

appropriate material [Secondary; SuccessMaker]

- The differences in methods of doing calculations can be confusing for some pupils. In a normal classroom, the system is sufficiently flexible for most pupils and some of the material is inappropriate for children with particular difficulties [Secondary; SuccessMaker]
- Even the computing skills – using the mouse, etc – are at an appropriate level [SEN; RM Maths]

## **Appendix 5 - recording and reporting**

The following comments were offered on the benefits or otherwise of the recording and reporting facilities within the 2 packages

- The reporting system is challenging; it needs time to master it; it is not at all reader friendly; there is a new handout (recently received from RM) which maps the grades to the Scottish 5-14 levels. [Name] has mastered a technique for lifting the material from the reports into Excel and generating graphs, which appear to have gone down well with the parents. It takes time to interpret and 'action' the reports [Primary; SuccessMaker]
- I found it very confusing initially (especially in comparison with RM Maths). I feel it is not in tune with other forms of formative assessment which are undertaken on an ongoing basis. The results tables do not appear to be linked clearly to the 5-14 levels. Although I enclosed the reports in the bundle of papers sent home last year, there was no parental reaction at all [Primary; SuccessMaker]
- There is a lot of analysis - many figures; only some of these are significant. The children's recording booklets are very helpful [Primary; SuccessMaker]
- A clear focus is needed to use the most useful forms of feedback; some reports are better than others. The systems help teachers to confirm their 'feeling' about gradings and about group classification [Primary; SuccessMaker]
- The reports are vital for Support for Learning [Primary; SuccessMaker]
- The feedback from RM Maths supplements what is being learned about children's styles, strengths and problems in the early stages of the early stages (they have been using RM Maths for only 3 weeks). Although not done in P1, it should help with classification into groups (both formally and informally) [Primary; RM Maths]
- The system can help the teacher to pinpoint small points of misunderstanding (eg the concept of 'one more' gave some of the P2 children real problems which the system made clear but which was not evident from other work). It is very useful for assessing readiness for testing for the 5-14 levels; it helps the teacher to define "approaching" [Primary; RM Maths]
- There is a lot of paperwork (especially SuccessMaker). It is helpful to have the children's booklets for them to complete on an ongoing basis. RM Maths is clearer in this respect than SuccessMaker [Primary; RM Maths]
- The reports have proved very helpful for parents' evenings; there is paper evidence for what the teacher knows (and there is no conflict with other feedback); parents are generally impressed [Primary; RM Maths]
- ILS gives only one aspect of the overall picture; a whole school knowledge of the child is necessary for best results [Secondary; SuccessMaker]
- The statistical and other reports cannot tell you about the degree of 'challenge' which the activities gave to the pupil; body language and monitoring only can tell you this, to supplement the reports. It is also useful to have the statistical reports for the parents and the pupils themselves [Secondary; SuccessMaker]
- School uses its own sheets to record pupil progress. It would be better if reports could display properly on screen without scrolling so that everything doesn't have to be

printed [Secondary; SuccessMaker]

- School uses its own sheets to record pupil progress. Teacher checks progress after each session – this is very motivating [Secondary; SuccessMaker]
- The information may be beneficial when I've had more familiarity with it [Secondary; SuccessMaker]
- Doesn't apply [SEN; SuccessMaker]
- The children record their scores on a chart. The RM Maths are checked when a child has a low score [SEN; RM Maths]
- Only used the Teacher section for adding names, not to look at reports [SEN; RM Maths]

## **Appendix 6 - best ways to use ILS**

The following comments were offered about the best arrangements which school had evolved to make use of the learning system software

- The day is arranged in 3 blocks (approximately 1.5 hours); there are also annual blocks of time (4 'terms' per year); children are normally active for 3 blocks in the year for about 3 sessions (25 minutes within the 90 minute block) per week but there are opportunities when the 4 machines in a corner of the library/corridor/open space are free for pupils to have additional sessions. The continuation is assessed annually; there is - for some - an SEBD element to the decision about being kept on the system. They have 2 main groups of children - there are 120 altogether but not all of them are active at any time; they have slower learners who need help with (basic) skills and there are rapid learners who need to be challenged. There are worksheets for the more able; they are dull but helpful for that group. There is a star system - pinned to the wall - for high achievement. The classroom assistant is freed at the beginning of the year to train the children to use the system. The record sheets are useful; children can record their attainments [Primary; SuccessMaker]
- There are 4 groups of a mixed nature. The teacher cannot supervise directly because the computer on which it is mounted is in a small corner near the staff room, not in direct line of sight with the classroom. There is a helpful buddying system whereby P6 children help with the induction of P5 newcomers [Primary; SuccessMaker]
- School has roll of 170, single stream P1 through P7. Children in P1 to P5 use RM Maths; they have 7 licences (1 in the computer room; 2 in P5; 1 each in P1 through P4). Children in P6 and P7 use SuccessMaker (which everyone refers to as "ILS"); they have 15 licences (12 of which are in a specialist computer room between the P6 and P7 classrooms). Children do SuccessMaker 3 times a week for about 30 minutes, with a cocktail of maths, English and spelling, throughout the year; the room permits up to 12 children to be involved at a time with teacher contact rather than direct supervision. RM Maths is done in the classrooms, normally with a single machine in each class. Teachers rotate the children for different periods of time but the number of stations limits the time. They would welcome a repetition of the EA scheme which brought additional RM Maths licences for £100 each [Primary; SuccessMaker]
- Grids to track pupil progress [Primary; SuccessMaker]
- Monthly reports; more frequent would be unmanageable [Primary; SuccessMaker]
- Pupil session times displayed [Primary; SuccessMaker]
- Individual notebook records scores. Tracking chart is sent home with parents' guide [Primary; SuccessMaker]
- A class teacher's guide has been created to help staff understand the process [Primary; SuccessMaker]
- School has 2 SuccessMaker computers. Identified children (maximum of 12 for each computer); use 5 times each week. Specific area is identified, eg this session is maths. A folder keeps records of daily scores [Primary; SuccessMaker]
- DHT and class teacher discuss reports with SfL teacher [Primary; SuccessMaker]
- Worksheets printed and used as a basis for individual activities with SfL teacher

[Primary; SuccessMaker]

- The decision about who is enrolled on the system is usually made by the Support for Learning teacher in consultation with the class teacher. The class teacher will often use SuccessMaker with children who do not receive additional support but would benefit from extra skills practice or with more able pupils who require to be challenged. The Support for Learning teacher works with pupils most in need of extra support. Only one program is used by each pupil to avoid confusion. 12-15 children seen by SfL + those seen by class teachers. Used by P2-P7 [Primary; SuccessMaker]
- Pupils are identified by class teachers; not always Support for Learning pupils [Primary; SuccessMaker and RM Maths]
- Whole class access - rolling programme [Primary]
- Poor children identified who will benefit. Timetables with access 4 times each week [Primary]
- There is a single machine in the class. Children get a turn for about 10 minutes each day; about three-quarters of the class (26) get a turn each day (normally). It was useful to have time from a classroom assistant to help to introduce the young children to the symbols and other conventions by which the system is managed [Primary; RM Maths]
- The regime is 15 minutes per day once per day. A mixed group of about a third of the class work through the activities for 6 weeks; this block happens 3 times per year; this amounts to 21 hours for each child in a year. It is very popular with the small children; they come in at lunchtime; their concentration is such that they do not want to leave prematurely (and the school has a story about one earnest participant who had 'a wee accident' in consequence). If they get 100% of the questions right, they get a sticker from the teacher [Primary; RM Maths]
- Children get between 5 and 7 minutes depending on their ability level in maths (according to 5-14 attainments) [Primary; RM Maths]
- The school decided to purchase laptops for each of the 6 classes using RM Maths (P2 through P7); this released the (2) desktop computers in each room for other purposes. Each teacher chooses the group of children (always mixed ability) to work through the material at any time. The general impression is that it is very good for stretching the more rapid learners. It is welcome that there are now Scottish levels in the feedback, which helps to relate this directly to other measures of achievement for reporting to parents. It has been especially useful for helping to confirm teachers' judgements that a particular child is ready for national testing at the appropriate level. The regime is for children to spend 15 minutes per day; the package offers a rich variety of activities which the teacher could not easily match [Primary; RM Maths]
- All children in P1 are given 10 minutes, 2 or 3 times each week. School has many children with English as their second language and RM Maths is used to develop their language skills, with positive results [Primary; RM Maths]
- While we only had Levels A-C, it was used with P2-P4, generally bottom groups. Now used with whole class, 5 minutes each per day. 1 computer dedicated to RM Maths per 3 classes in open plan area. Chart on wall lets pupils know when it's their turn [Primary; RM Maths]

- In the setup under way in [School], there is a worry that the use of SuccessMaker is marginalised; much less time dedicated to ILS than was the case at [another school] - “not enough blue sky”. There is an imperfection in flexibility in that there are (single) timetabled slots within the week [1 in English time; 1 in maths time] and so integration into the mathematics (and probably other) courses is harder [Secondary; SuccessMaker]
- At [School], forms of remediation sheet were developed to supplement those - plentiful but rather dull - which SuccessMaker itself generates. This local initiative improved the learning experience for many pupils [Secondary; SuccessMaker]
- The system is managed centrally, with limited scope for individual teachers to modify the balance - (eg between the sessions from the 3 courses which are involved - currently 13 minutes on Reader’s Workshop then 13 minutes on Maths Concept and Skills then 8 minutes on Spelling Skills). There is a wide range of prior experience, from nothing at all through primary experience of *RM Maths* only to considerable experience of *SuccessMaker* courses. The single period a week in the English time - out of a total S1 allocation of 6 periods (of 40 minutes each) - does not offer much time to practise the skills which are being targeted [Secondary; SuccessMaker]
- All S1 pupils have 1 x 40 minute period taken from Maths and 1 from English. Each period has 20 min of language (RW and SS) and 20 min of maths (MCS). Pupils are given feed back on their progress and this is motivating. Poorer S2 classes also use SuccessMaker. Progress is recorded on sheets on the wall [Secondary; SuccessMaker]
- All S1 pupils have 1 x 40 minute period taken from Maths and 1 from English. Each period has 20 min of language (RW and SS) and 20 min of maths (MCS). Pupils are given feed back on their progress and this is motivating. Poorer S2 classes also use SuccessMaker. One difficulty with recording and reporting is that pupils are in different Maths and English sections. The teacher needs time to look at reports and provide feedback. There are sheets on the wall on which pupils’ scores are recorded. This works best when the teacher keeps on top of things and knows how pupils are progressing. Certificates of achievement aren’t used because of lack of time [Secondary; SuccessMaker]
- 3 machines used by children given extra support. Sometimes a problem with children hogging machines. Managing time to fit in SuccessMaker alongside other activities can be difficult [Secondary; SuccessMaker]
- 1 SuccessMaker licence in school. Target particular class each year. Currently just using Maths Concepts & Skills – hope to use language problems in future. Using SuccessMaker suite in neighbouring secondary school – one class once a week – 20 min MCS, 20 min RW [SEN; SuccessMaker]
- The chart for recording scores also serves as a timetable to monitor that everyone has had the appropriate amount of time on the system. Wearing headphones, listening to the voice and focusing on the problems is very calming for children with behaviour difficulties. All children use *RM Maths* – 3 times per week. It is good for children who have difficulty with anything new as it provides success without stress [SEN; *RM Maths*]
- Scores are recorded by the pupils on a chart on the wall. This also serves as a check on who has had their turn. Headphones are not used – the computer with *RM Maths* is

situated near the teacher's desk but away from other distractions. This allows the teacher to monitor what the child is doing and to provide help when required. All children in class use the program – usually 20 minute sessions three times a week [SEN; RM Maths]

## **Appendix 7 - practical challenges**

The following comments were offered about practical issues which schools had to deal with when making use of learning system software. There was considerable overlap (and repetition with the comments in Appendix 2)

- The school has a strict behaviour policy - 3 strikes and then banned for the rest of the week; children do not like to have this removed. There have been recurring reliability problems - 1 of the 4 machines was down when I visited and another 'hung' and had to be restarted. There have been instances of nervous children chewing through the headphone cables. There have been problems with the voice. They do not use passwords - numbers only [Primary; SuccessMaker]
- The children reported that sometimes the sound did not appear to be working, for no evident reason. The configuration is evidently not perfect - note earlier issue about currency being displayed in dollars [Primary; SuccessMaker]
- There is not enough time to analyse children's performance - both progress and problems. A particular current issue is that the available time is eaten into by all sorts of things, eg time for specialist visiting teachers (recently added to by business education). The audio disappears for no reason sometimes, and with no explanation - suspect that this may be a headphones issue. There have been times when using time measurements when the analogue clock face have been wrong (the hour hand) [Primary; SuccessMaker]
- Sound disappears sometimes for no evident reason. Headphones wear out, and this means you need a small stock. They back up the SuccessMaker progress data on a Zip disk; but when they tried to pass this information to the associated secondary school, this fell down because the secondary school has no Zip drive. There is a major need for time for the teachers involved to get the data off the system and to analyse it; a previous arrangement with [the associated secondary school] was most welcome, where the overall co-ordinator came to the schools and took the classes to release the teachers but was available to advise when needed. Also the previously used batch file processing system could be helpful for backing up [Primary; SuccessMaker]
- Time is needed to distribute reports to pupils, teachers and parents. Teachers often see this as 'more paperwork' [Primary; SuccessMaker]
- Awful American accents - children have some difficulty in understanding [Primary; SuccessMaker]
- Headphones go missing. A double headphone adaptor allows teacher to listen in to what child is hearing and to offer appropriate help. Passwords can prove difficult for young children. A lower case keyboard would be useful for young children [Primary; SuccessMaker]
- Accessing information about performance needs to be more efficient - or require more training [Primary; SuccessMaker]
- Reports could be more user friendly [Primary; SuccessMaker]
- Some 'blips' such as repeated questions [Primary; SuccessMaker]
- Time to record progress [Primary; SuccessMaker and RM Maths]
- Printers and headphones need to work [Primary; SuccessMaker and RM Maths]

- Making up the cards for the children to record their attainments (based on the model in the manual) took some time; as did inputting the 'registration' information for the children (based on shapes and colours). Children sometimes log in as the wrong person (colour/shape) and although the teacher can 'undo' that; it negates the chance for the child whose 'account' that really is from having a turn during that day, which is a bit unfair. It also takes a little time to remove that 'false' score from that pupil's profile [Primary; RM Maths]
- There is an issue about how to manage any breaks in service; if they abandon, they are 'timed out' and get no credit. This is especially challenging for infants where visits to the loo are commonplace. There has been an occasional problem of children chewing the wires on the headphones when they are being challenged. Some of the younger children have had problems with the trackpad on the laptop; this has been largely solved by using a mouse [Primary; RM Maths]
- SuccessMaker - don't like "See Proctor" and "Debug" and other system messages. It seems to resume too at the 'wrong' place after there has been a system snarl-up. Using cheap headphones brings problems with both systems [Primary; RM Maths]
- Lack of teacher confidence [Primary; RM Maths]
- If the computer has been left on overnight, the previous group's screen has to be changed by the teacher (using the password) before starting with another group [Primary; RM Maths]
- If a particular workstation crashes, the pupil is thrown out of the system, thus losing both the feedback and the breakdown of performance for the pupil; perhaps more importantly it have a deterrent effect on the pupil's confidence in the system. Pupils don't always see the bigger picture and so are not always clear about the purposes of particular elements in the (random) activities with which they are presented. While there are come good feedback elements, including some of the animations, there may be a worry that it reminds pupils of their 'shortcomings' [Secondary; SuccessMaker]
- Headphones - children messing around with them; they are fragile; there may be health and safety concern about children using headphones which other children have used. Breakdown can be a problem; with individual machines breaking down there is usually sufficient absence to allow a spare machine for the child to transfer (albeit without getting the benefit of the session which was interrupted). But if the whole network seizes up - not yet happened at [School] setup but only in full operation for third week - they simply return to the classroom and carry on with other activities. So neither is traumatic [Secondary; SuccessMaker]
- Headphones - children play with them (eg turn the volume down, to the puzzlement of the next child to use that station); they occasionally come out; some have to be moved from the socket at the back to the one at the front for reasons which are not at all clear. It is not possible to share any audio - if the teacher wants to hear what the pupil can hear, this is not possible. The class contains 2 profoundly deaf children and this presents challenges in some of the activities, especially in spelling; there is a hearing impaired support teacher with the pupils [Secondary; SuccessMaker]
- It can be difficult to understand the pronunciation in Spelling Skills. Headphones don't last. Children can waste time checking their scores during a session [Secondary; SuccessMaker]

- Headphones are often misused. There has been no problem of children lacking appropriate skills. Children sometimes log on with someone else's number which messes up the record of progress. It can be difficult sorting out what's of value in the reports [Secondary; SuccessMaker]
- Headphones don't last. There is some stigma because SuccessMaker is associated with primary school. Children of low ability can be quite aware that others are considerably further on than them and become discouraged [Secondary; SuccessMaker]
- Open plan nature of most classes makes placement of SuccessMaker computer difficult – needs to be away from distractions but able to be monitored by teacher. Having the computer dedicated just to SuccessMaker works well – children not distracted from task [SEN; SuccessMaker]
- There were no problems with the program itself. Sometimes a child's lack of skills can be a problem at first [SEN; RM Maths]
- No problems encountered [SEN; RM Maths]

## **Appendix 8 - extent of curriculum fit**

The following comments were offered about the extent to which learning system software provides contexts which integrate well with the existing curriculum

- The problem with long division is an exception. Children sometimes meet things in the activities before they have been introduced in the classroom; this is sometimes helpful for the brighter children but sometimes not helpful for the slower learning children. There is a huge range of activities. They have set up additional accounts with a particular strand set to give additional practice for some of the children (who have particular problems with particular elements) [Primary; SuccessMaker]
- It fits well into the curriculum, perhaps especially for the brighter ones and for introducing new topics and giving rapid practice. Some at least of the problem solving activities can be collectively done; this had happened a few times when children brought a problem back and they all went over it [Primary; SuccessMaker]
- SuccessMaker is not (yet) properly integrated with Scottish 5-14 levels [Primary; SuccessMaker]
- Motivation is excellent; spin-off - recognisable improvement in reading ability and increased independence [Primary; SuccessMaker]
- There are lots of concepts in any session, which is valuable and it permits pupils to re-visit material which has been covered in the past, to keep skills in practice [Primary; RM Maths]
- There is a definite curriculum fit [Primary; RM Maths]
- She (and some others) have used elements of the package with a whiteboard for direct teaching - mainly but not only to introduce a new topic in mental maths. She reckons that up to half of the material might be susceptible to this approach [Primary; RM Maths]
- Updated v4 with 5-14 element not available as yet; v4 will give direct link to 5-14 maths [Primary; RM Maths]
- School only has access to v3 of RM Maths so has not been able to fully appreciate the ability to directly relate RM Maths to the maths curriculum; v4 has since been made available [Primary; RM Maths]
- For some pupils the response would be a 4. ILS focuses on fundamental skills; it provides a 'skeleton' and the work in the classroom helps to add the meat to these bones [Secondary; SuccessMaker]
- SuccessMaker seems to offer a consistent and 'clever' way of tackling interpretation, which is a relatively unexciting element of the English course [Secondary; SuccessMaker]
- Because English is a flexible subject, without uniquely specified elements, it is possible to integrate the SuccessMaker activities into the overall programme. At [previous school] in 2002 the marking of the preliminary examinations revealed an undoubted improvement in the quality of spelling [Secondary; SuccessMaker]
- SuccessMaker provides a way of making normally boring work more enjoyable and attractive. It is a useful way of focusing on grammar [Secondary; SuccessMaker]

- The work isn't directly related to the work of the class but this is useful. It gives the children a break from the normal work of the classroom and allows them to revisit topics they have already met in class and prepares them for topics which are still to come [Secondary; SuccessMaker]
- The work is not wholly consistent with classwork [Secondary; SuccessMaker]
- The children stay enthusiastic. Repetition doesn't seem to be a problem. Children become familiar with the SuccessMaker 'style' very quickly [SEN; SuccessMaker]
- All children benefit but amount varies depending on individual strengths and weaknesses [SEN; RM Maths]

## **Appendix 9 - appropriateness of the teaching model**

The following comments were offered which relate to the appropriateness of the teaching model which is implicit in the learning system software

- The model is of mixed value and there are some examples (eg long division) where the approach is different from the school's [Primary; SuccessMaker]
- The children's reaction is positive; but they did report that sometimes the instructions were not clear to them [Primary; SuccessMaker]
- The system is good for praise. It gives the faster learners time to work through but the slower learners are perhaps too often cut off in their stride (because it is set to a time limit rather than a number of activities). The children learn to erase and correct mistakes on the screen and are not worried that this shows up in their profile; they are more interested in getting animals for their virtual farm and seem to show no interest in the 'scores' [Primary; RM Maths]
- The young children appear to enjoy using the laptop; it makes them feel 'grown up' [Primary; RM Maths]
- The pupils are pleased when they get 100% of the answers correct; many teachers give them stickers. The children seem to welcome the feedback [Primary; RM Maths]
- There is no such thing as an ideal learning environment [Secondary; SuccessMaker]
- ILS covers a limited range of all the skills which the English course aims to develop [Secondary; SuccessMaker]
- The animations in some cases are not to personal taste (aesthetic rather than educational judgement) but some experience (from [previous school]) that by S2 stages the pupils find them a little 'uncool' [Secondary; SuccessMaker]
- Response would be 3 if we could allocate more time to SuccessMaker [Secondary; SuccessMaker]
- Some pupils find they are slowed down by SuccessMaker's insistence on breaking problems down into smaller steps [Secondary; SuccessMaker]
- Older pupils find the style of SuccessMaker too childish [Secondary; SuccessMaker]
- It's like having another assistant in the classroom. It forces concentration on a task – for 20 minutes the computer directs their work [SEN; SuccessMaker]
- Much of the work with children in a special school is repetitive. RM Maths provides repetition without placing demands on the teacher or wasting lots of paper [SEN; RM Maths]

## **Appendix 10 - the impact of ILS in external measures of progress**

The following comments were offered by staff interviewed on evidence to demonstrate that use of learning system software is bringing improved performance in externally measured assessments of progress, such as national testing for 5-14

- We have looked at both national tests and standard spelling age tests and think there are improvements. Equally important is the development of confidence and self-esteem through solid achievement. The system is excellent for getting children to do interpretation of reading; it offers more different examples than teachers could easily generate and this is useful practice for the national test formats [Primary; SuccessMaker]
- It seems to help the brighter children and helps with pre-testing (eg E at P7). There is a suspicion (not certainty) that it helps (brighter) children to cope with unseen questions. On the other hand perhaps the slower learning children are benefiting also from a concentrated effort for 15 minutes [Primary; SuccessMaker]
- The school has been making progress in the measures which are charted against national priorities - eg percentages at A+ in P3, B+ in P4 etc [Primary; SuccessMaker]
- There have been improvements but it is hard to isolate how much is due to the use of SuccessMaker [Primary; SuccessMaker]
- No systematic evaluation has yet been possible [Primary; SuccessMaker]
- Some pupils are actually performing better on SuccessMaker than in traditional assessments, usually those with low self-esteem [Primary; SuccessMaker]
- RM Maths and SuccessMaker are allowing children to focus their attention on one activity without outside distractions. These children experience particular difficulty in this aspects of their learning both in school and in the home environment. In an area of deprivation like this, ILS is one of the solutions to the problem of poor and limited experience [Primary]
- 6 weeks into P1 [Primary; RM Maths]
- There has been definite improvement; the school is also using a new Heinemann maths programme and so it is not clear which elements in the clear improvement in the proportion achieving level A by the end of P2 are down to RM Maths and which to the new programme [Primary; RM Maths]
- There is a hint that use of the systems may help children to be more independent in their learning [Primary; RM Maths]
- RM Maths compliments the work going on in class. It reinforces previous skills taught, giving extra practice [Primary; RM Maths]
- Children perform differently; there is evidence of both propositions 3 and 4 in our school [Primary; RM Maths]
- A change of maths scheme has complicated the answer to this question [Primary; RM Maths]
- The breakdown from SuccessMaker tends to correspond with the feedback from other tests [Secondary; SuccessMaker]

- We think so - 5 to 14 tests at [previous school] appeared to be being done better than before. In written work, there appeared to be a clear improvement in spelling [Secondary; SuccessMaker]
- Improvement in spelling by S4 [Secondary; SuccessMaker]
- Results in national tests are improving but it is impossible to attribute this to any one cause [Secondary; SuccessMaker]
- The maths department has seen improvements in 5-14 levels but there is no way of directly attributing this to SuccessMaker [Secondary; SuccessMaker]
- Not applicable [SEN; SuccessMaker]
- It is difficult to measure any kind of progress with my children. For some children, such as some with Autism, this kind of program helps them to focus and think things through [SEN; RM Maths]

## **Appendix 11 - the impact of ILS on teacher confidence to use ICT**

The following comments were offered in response to the question “Do you think that your involvement with the learning system software has made you more confident about using other methods of learning and teaching using computers and similar devices”. The statements about (considerable) prior experience have not been included

- Fairly regular personal user but it was helpful in suggesting new ways to use the computer for learning and teaching (along with RM Maths) [Primary; SuccessMaker]
- Did not make much use of computers before use of SuccessMaker [Primary; SuccessMaker]
- SuccessMaker is now identified as having a significant place in individualised educational programmes [Primary; SuccessMaker]
- Coupled with NOF training, which I found very helpful (especially *PowerPoint*), I have learned a lot. Taken advantage of the Computers for Teachers scheme and it has now taken off at home too [Primary; RM Maths]
- Never previously made use of the computer for learning and teaching [Primary; RM Maths]
- She thinks it is possibly helping to make colleagues more confident in the use of computers (eg transfer of data) [Primary; RM Maths - talking about colleagues]
- Obviously likely to be of most value when using other ILS systems [Primary; RM Maths]
- Feel it reduced the technophobia; it is a form of experiential learning which has reduced the fear factor for some colleagues [Secondary; SuccessMaker - talking about colleagues]
- Feeling that some other teachers have gained in confidence (especially one colleague who was extremely sceptical) [Secondary; SuccessMaker]
- Problems – not enough time to become properly familiar with the courses or for the pupils to make best use of the software [Secondary; SuccessMaker]
- It has made no difference because I was already keen on using technology [Secondary; SuccessMaker]

## **Appendix 12 - other general comments**

The following comments were added by staff interviewed. Sometimes these affirm or (slightly) modify experiences or views expressed elsewhere

- In observing one of the children using the system, [investigator] saw one of the potential weaknesses. He was asked how many millimetres in a metre and typed 100; nothing in the system explained that the prefix 'milli' indicates 1000. Once that was explained by [investigator], all was straightforward. The system might be especially helpful for brighter children by helping them to push beyond the 'middle' pitch. Some of the faster progressing children are meeting activities before they cover this in class. While this might create some tensions, the brighter ones can cope well [Primary; SuccessMaker]
- Those children who ask the teacher for help in other environments also ask when using SuccessMaker; no noticeable upset to the norms [Primary; SuccessMaker]
- SuccessMaker permits the production of relevant worksheets, which can be a useful aspect of the system - eg keeping the faster learners going with additional worksheets. There is a major problem about the speed of operation (SuccessMaker) where the impatient child types the beginning of an answer before the system is ready to take it and so they are being penalised for misspelling when they have the correct answer. This also applies if they hit the wrong key. Carelessness is perhaps too heavily penalised. A buddying system was successful where P7 pupils sat with P6 pupils to introduce them to SuccessMaker [Primary; SuccessMaker]
- I know that there is much more to explore in SuccessMaker. I would like to have more SuccessMaker computers so that I can use them more effectively in my school [Primary; SuccessMaker]
- The system seems to adapt well to each child [Primary; RM Maths]
- The algorithm which works out the frequency of activities and their level appears to be right. The teacher can override the system's judgement to 're-test' a pupil after a couple of weeks (or longer) to confirm that the learning has 'stuck'. There is uncertain meshing with the use of SuccessMaker in the associated secondary school; [School] only uses it for maths and it seems to be helpful for stretching brighter children. There is a variety of uses within the cluster [Primary; RM Maths]
- I am already aware of the importance that ICT has across the curriculum [Primary; RM Maths]
- ILS may be helpful for adolescents in that it does not trumpet their success and this may be consistent with desire not to stand out in any way. [Name] thinks that the moment of 'epiphany' (when learning becomes clear and purposeful) can come within ILS (and elsewhere). [Name] also has strong views about the conservatism of maths teachers in the use of new learning methods; ILS appears not to be in any way threatening and may help with the transition [Secondary; SuccessMaker]
- SuccessMaker embodies a systematic model of learning which teachers could not plan with the equivalent degree of precision. ILS is extremely good at catching children who miss learning; it picks them up wherever they were when they went off (no matter how long they are off); the resumption is seamless and does not proclaim to others that the child is well behind others [Secondary; SuccessMaker]

- It provides the children with variety [SEN; SuccessMaker]
- It is good for the children to have problems presented in different ways. Even listening to a different voice from the teacher's is of value to some children. Some autistic children find difficulty with traditional maths because they have to wrestle with getting the answers down on paper amid the distractions of a normal classroom as well as the actual problem. They can manage using the computer because they are able to focus on the problem. It is not competitive – good for children who have little success or self-esteem [SEN; RM Maths]
- The program is very attractive and offers a great deal of variety. It helps the children consolidate learning. It can be used to give the child (and the teacher!) a break when the interaction in the classroom becomes too stressful. Because the child is focused on the activity, distractions in the room can be ignored. It is easy to manage, so an auxiliary can easily support children using the program [SEN; RM Maths]
- It would be better if we had 3 x 40 minute sessions rather than 2 [Secondary; SuccessMaker - 2 teachers said this]
- RM Maths is particularly valuable because children are highly motivated to use it and achieve success [Secondary; SuccessMaker]

## **Appendix 13 - schools and staff involved**

The following schools and staff kindly agreed to be interviewed

Bankhead Academy (HT: Atholl Garden)

Katherine Marvin

Kevin Simpson

Patsy Swadel

Culter Primary School (HT: Jayne Glover)

Morag Anderson

Barbara Polson

Ailsa Ritchie

Forehill Primary School (HT: Margaret Moore)

Lynn Bruce

Jess Petrie

Gilcomstoun Primary School (HT: Stewart Duncan)

Sally Blackledge

Sue Hyland

Loirston Primary School (HT: Morag Thom)

Shirley Campbell-Morgan

Pamela Matthew

Marlpool School (HT: Hilary Gordon)

Maureen Churcher

Jane Dunn

Andrew Moss

Middlefield Primary School (HT: Catherine Taylor)

Alison Muir

Meg Strachan

St Machar Academy (HT: Len Taylor)

Andy Byrne

Colin Fenn

Richard Jack

Stewart Reid

Seaton Primary School (HT: Charlotte Harkess)

Mary Matheson

Vince Mitchell

Isabel Silvestro

Stoneywood Primary School (HT: Alistair Cormack)

Jessie Greig

Freda MacPherson

Fiona Ure

The investigators were

Lilian Lindsay, ICT Development Officer, Learning and Leisure, Aberdeen City Council

Roddy Stuart, Educational ICT Consultant

Andy Watson, ICT Development Officer, Learning and Leisure, Aberdeen City Council