

Impact of the Alta Maths for Schools system in Scottish schools

Headline findings of an investigation carried out by Roddy Stuart for LT Scotland Autumn 2006

Based on 21 interviews involving a range of educational personnel and 6 groups of pupils.

The Results – Staff

- All teachers, including those who were IT novices, found the system useful and accessible
- Teachers did not have to change their teaching styles to accommodate Alta
- Teachers liked the wide range of question types they encountered
- Many commented that Alta actually enhanced their teaching
- Practice assessments were judged the most useful by teachers and pupils
- Quite a few staff felt that the Alta assessments were superior to national assessments
- The student/learner profiles were seen almost universally as a positive experience for all
- Teachers were able to identify longer term benefits to using the system
- All the adult respondents thought that Alta was consistent with the trends set out in a Curriculum for Excellence
- There was an overwhelmingly positive response to the training and the support provided by Alta

Issues

- Teachers were uncertain of the status of the Confirm Level Test compared to national assessments
- There was a range of technical issues: bandwidth, plug-ins, internet access, difficulties in logging on which had to be overcome
- Some teachers were concerned about workload, classroom management, widening the gap between talented and slower learners and the over use of computers

The results – pupils

- All children interviewed were quick to indicate that they enjoyed using Alta
- They liked the visual elements; working with onscreen tools; seeing their own performance; feeling in charge; timed questions; the helpful tone of the system; and it was easier than using a jotter
- The general view was that the system was easy to operate
- Most liked the variety of question types and the variety of examples within these types
- Pupils liked the practice assessments and the formative information generated in the learner profiles
- They liked the model answers and some used them to increase their understanding of maths processes
- A majority of the children thought that Alta was a better way to be tested
- There was a general warmth towards Alta

Issues

- Some, not all, pupils disliked the timed mental maths questions
- Some pupils encountered internet access problems and error messages
- There were anomalies in the way that some questions were rendered onscreen

Impact of the Alta Maths for Schools system in Scottish schools

Summary findings of an Investigation carried out by Roddy Stuart for LT Scotland Autumn 2006

Rationale

This independent evaluation (November – December 2006) focused on a series of pilots run in six Scottish education authorities using the Alta Maths Solution. The purpose of the investigation was to

- capture perceptions of staff and students
- get staff reaction on the compatibility of the Alta Solution was with aspects of a Curriculum for Excellence
- outline a synopsis of existing research¹
- develop plausible worthwhile future investigations

Methodology

21 interviews were conducted with primary and secondary teachers, senior managers, Education Authorities and SQA officers and six groups of 6/7 pupils.

The Results - Staff

All teachers, including those who were IT novices, found the system useful and accessible. Teachers stated that they did not have to change their teaching styles and many commented that Alta actually enhanced their teaching through better and more varied delivery; more targeted teaching and personalised learning; better management of composite classes; as well as offering the possibility of individual and group working. While practice was highly rated by all, some teachers felt that Alta had a useful role in introducing topics and consolidating learning. They believed that the diagnostic element made the system useful at all stages of learning.

Of the various elements in the Alta Solution, practice tests were judged the most useful by teachers and pupils. Adaptive tests were generally not used, and while the maths tasks were highly rated, teachers did not generally use them during the trial. The practice assessments were often used as a teaching resource particularly in co-ordination with interactive white board.

Teachers were more ambiguous with regard to the Confirm Level Test, mainly because they were uncertain of its status compared to the well established national assessments. However, quite a few staff felt that the Alta assessments were superior (some thought more rigorous) to the national assessments. They felt that the feedback in the Learner Profile gave formative and diagnostic detail.

The student/learner profiles were seen almost universally as a positive experience for all. They were useful to teacher and pupil and provided a colour coded record that could be reviewed horizontally and vertically to identify current progress, strengths, areas for development and persistent difficulties.

Teachers liked the wide range of question types they encountered, particularly those, such as the toolkits, which had a visual and kinaesthetic dimension. The only item which produced a mixed response was the timed mental maths questions.

¹ A separate report was prepared and forwarded to LT Scotland.

While administration, for example registration of classes etc generally went well, not unexpectedly there were a range of technical issues: bandwidth, plug-ins, internet access, difficulties in logging on. Macs produced some particular problems. With the exception of one school, these difficulties were overcome and teachers commented on the positive response and support received from Alta, particularly from Rosaleen Murphy.

There was an overwhelmingly positive response to the training. One teacher described the day as “superb”. Some practical suggestions such as a recall session, school networking and training for late entrants, were made.

Despite the limited scope of the pilot and some uncertainty amongst teachers as to impact, there was surprising support that Alta was making a difference in developing a deeper understanding of mathematics. Longer term benefits were seen as:

- focus on areas for improvement, by pupils and teacher;
- consolidation of understanding;
- understanding where mistakes have been made;
- efficient learning through a more rapid pace.

Teachers were keen to see greater coverage and use of familiar terminology. Some were concerned about workload, classroom management, widening the gap between talented and slower learners and the over use of computers. At least one teacher thought Alta represented a more cost effective solution than integrated learning systems such as SuccessMaker.

All the adult respondents thought that Alta was consistent with the trends set out in a CfE. Several saw the benefits of children

- monitoring and checking their own work and progress;
- identifying areas to work on;
- taking responsibility for their own learning;
- clarifying the objectives of learning maths;
- working at their own pace.

The results - pupils

All of the groups of children interviewed were quick to indicate that they enjoyed using Alta. They liked

- the visual elements;
- working with onscreen tools;
- seeing their own performance;
- feeling in charge;
- timed questions;
- the helpful tone of the system;
- it was easier than using a jotter.

The general view was that the system was easy to operate. Many pupils quickly became competent in using the system, bypassing the occasional error/system messages. Most liked the wide variety of question types and the variety of examples within these types. As stated earlier only the timed mental maths produced a mixed response.

There was universal agreement that being able to practise is a good idea. Pupils liked the practice assessments and the formative information generated in the Learner Profile. They liked the model answer – some pupils wanted more detailed explanation. Others deliberately answered incorrectly and used the system to gain insights into operations they did not understand.

A majority of the children thought that Alta was a better way to be tested than the paper exercises they were used to. They found the Confirmed Level Test involved less writing; made it easier to correct mistakes; was less nerve racking and more fun. The assessment information generated in the Learner Profiles told them how they were doing. They also thought the questions easier than the national assessments. A minority was keen on the traditional format, without saying that they disliked Alta.

When asked, pupils were uncertain about the quality of learning that Alta had induced and many cited a range of operations and procedures related to favoured question types. However there was a general warmth towards Alta in most of the comments and some overtly recommended it, some comparing it favourably to other mathematical learning systems.

Overview

In summary, the pilot did not always run as planned. Technical (sometimes of unknown origin) and classroom management issues occurred but all felt that it was a worthwhile exercise. Staff and students were all positive about the fundamental idea and the basic operation of Alta. While aspects of the system such as adaptive assessments and numeracy tasks were not fully exploited, people believed that Alta had something to offer most areas of the mathematics curriculum as it is now, and as people expect it to be. It was felt to be useful at several stages of the learning process and had a close fit with approaches to formative assessment. Training and support were seen as excellent.

Recommendations

- Provision of a mentor to support teachers involved in piloting.
- Develop a network whereby schools collaborate and support each other.
- Provide technical troubleshooting to deal with routine problems.
- Engage in technical trialling of ICT systems before use to inform development of SSDN/GLOW.
- Modify training and support to provide an initial overview with later follow-up. Provision should also be made for late entrants.
- Clarify the relationship between Alta tests and national assessments.

Further Research

- Dedicated audit of technical issues.
- Identification of the long term benefits of Alta in a controlled situation.
- Exploration of models of classroom management.
- Exploration of the impact of home use of the Alta solution.