LEARNING AND LISTENING

An Evaluation of Classroom Audio Distribution Technology for Enriching Teaching and Learning

Small group teaching

Whole class teaching

Student collaboration

The validity and reliability of the research findings

According to research creating a good sound field in classrooms is clearly an important factor in improving achievement in schools. As a result, Lightspeed Technologies, a learning organisation, has partnered with professional educators in schools to research and develop their product. This research and development project was designed in association with the MirandaNet Fellowship, founded in 1992. This professional organisation with nearly 1,000 educators in 80 countries has an international reputation for researching the value of technologies in improving teaching and learning and changing practice.

These change management strategies are achieved through the iCatalyst programme, a method of continuing development in which the MirandaNet team works with teachers as co-researchers. In this partnership with professionals, companies who are committed to learning ensure that the research they commission is appropriately designed and executed, valid and reliable. In addition teachers and associates gain knowledge and experience through the iCatalyst programme that they can transfer to other learning contexts with the aim of raising achievement.

Dr Christina Preston,
Professor of Education
Innovation

Roger Turner, MA,
Senior Research Associate

Dr Sarah Younie,
Director of Research and
Innovation

Supporting traditional teaching with REDCAT

The first stage of the report, 2008 -2014, focused on the REDCAT CAD system that amplifies the voice in the classroom and in group teaching contexts. REDCAT was designed because research studies over the last twenty years have shown that the learning of a surprisingly high percentage of children is impaired because they cannot hear their teacher well enough.

The need for such a system was validated by the observations of 58 teachers in 7 primary and 7 secondary schools where REDCAT systems had been installed for up to a year with:

• 91% of teachers agreeing that their students are able to hear and understand instructions better;

• 79% of teachers agreeing that their students learn faster;

• 84% of teachers agreeing that their students' attention increases;

• 78% of teachers agreeing that their students' overall achievement improves;

• 71% of teachers agreeing that classroom management is easier;

• 77% of teachers agreeing that their students benefit from using a microphone when speaking to the whole class;

• 55% of teachers agreeing that they experience less vocal strain;

• 88% of teachers wanting to keep the REDCAT system in their classroom.

The large majority of the 554 students involved in the trial also valued the system highly with:

• 70% of students agreeing that they can hear and understand their teacher better;

• 64% of students wanting to keep the REDCAT system in their classroom.

These statistics show that at least 90% of teachers agree that their pupils were able to hear and understand them better when using the technology, thus strongly supporting previous quantitative research studies undertaken by other academics.

In the next phase focusing on traditional teaching techniques researchers concentrated on qualitative case studies of changes in professional practice. In the results, teachers agreed that students learnt more in the traditional sessions underpinned by the REDCAT device in five important areas:

• Improved hearing and understanding of teacher instructions;

• Improved on-task behaviour;

• Improved attention and engagement in discussion activities;

• Improved ability to follow directions;

• Improved self-confidence of pupils when speaking to the whole class.

For teachers, the professional benefits of the REDCAT system were judged to be:

• A need for fewer repetitions of instructions;

• Less vocal fatigue and tiredness;

• Improved ability to control and manage the class; leading to better behaviour;

• More time to support individual and small groups of learners.

The conclusions of the first stage of this research indicate how important managing the environment is in promoting learning.
The results indicate that by equipping classrooms with appropriate technology senior managers will be able to make an impact on levels of achievement throughout the school. These results indicate potential strategies for the raising of measurable achievement that could also be implemented by senior managers as evidence of learning in Pupil Premium and OFSTED reports.

So far 72 teachers have been involved in REDCAT and FLEXCAT research from 22 schools (12 primary and 10 secondary) in four West London boroughs, Hertfordshire, Dudley, Northamptonshire, Manchester and Devon in England as well as 2 primary schools from Scotland.

Developing collaborative learning techniques with FLEXCAT

The second phase of the research programme, using the technically improved FLEXCAT system has confirmed the trends highlighted from the first phase research and identified some new trends.

The key trends are as follows:

• Assured high quality speech intelligibility and the use of six pods is allowing teachers to make maximum use of learning spaces including those outside the classroom;

•Students are increasingly remaining on-task when engaged in small group collaborative activity as a result of the teacher being able to unobtrusively monitor discussions. This is increasing teachers' confidence in the frequency they can employ this highly effective learning style;

•The flow between whole class and small group working is easily managed;

•The quality of formative assessment of student contributions to small group discussion has improved significantly and teachers are increasingly able to provide more specific well-targeted feedback to individuals and small groups of students;

•The speed at which well-targeted intervention can be given is raising the quality of group discussions and the pace of learning overall;

•Teacher use of the pods is resulting in fewer disturbances to students not needing to hear interventions;

• Use of the pod call button is minimising the time when students waste time waiting for teacher support;

• More frequent use of student reporting to the whole class is occurring because of the availability of the pod microphone;

• There is growing evidence that students with profound hearing loss are benefiting from the use of the FLEXCAT system;

• Trial schools are beginning to invest in the technology as they see the results of its use to support effective whole class and small group collaborative teaching and learning.

Many of the technical challenges of the FLEXCAT system identified in Phase 1 have been overcome. However, in response to the teachers' and students' feedback further work is being carried out to improve technical issues like the speed of response of the handset and the clarity of the pupil voice through the pods.

Conclusions

Most of the teachers taking part in this research project were unaware about how poor the sound field is for many learners in classrooms, not just those with hearing challenges. Installing the REDCAT and FLEXCAT systems is shown here to have significant impact on achievement in all kinds of classrooms. However, the teachers involved have now turned their attention to innovation. The trends that are emerging so far suggest that not only traditional teaching can be improved but also the skills of collaborating and sharing can be enhanced by the judicious use of systems that extend and enrich teachers access to classroom exchanges.