

CLEVELAND ROAD PRIMARY SCHOOL: LESSON STUDY RESEARCH EVALUATION REPORT

Research Question:	How can we effectively challenge children to become independent learners within computing lessons?
Who was involved? (Include job roles)	S White – Computing Instructor, L Jonker – Year 3 teacher, A Juganaru – Year 3 teacher, T Bhesania – knowledgeable other

ABSTRACT

Over the last couple of years, with the changes to Computing, we have noticed children develop a state of learnt helplessness in varying degrees. When confronted with a problem in Computing, pupils would often turn to the teacher for support without attempting to resolve the problem themselves. There was a lack of independence and resilience in the pupils learning which we wanted to investigate and we sought to provide strategies which would address this issue.

AIMS

(a) The reasons for undertaking this lesson study project

- To investigate a variety of independent strategies children can use to problem-solve in Computing. Class teachers and computing subject leaders may find these strategies useful and may want to implement them in computing or other subjects.*
- To provide higher-ability learners with the skills to support their classmates rather than completing the work for them.*

(b) The identified target learners

- We choose to focus on one class from Year 3. We choose one class because it allowed us to develop our strategies and see progression across the six live lessons.*
- The class teacher chose nine children, three lower ability, three able and three higher achieving children. These pupils would give us a varying degree of ability and feedback if the strategies needed to be adapted for a particular ability.*

(c) How we intended to improve children's learning

- To see an improvement in their attitude to learning
- To see which learning strategies the children would favour and allow them to work independently or with a classmate
- To reduce their dependence on the class teacher and build a resilience to problem solving
- To begin to challenge themselves without the teacher's prompting
- To improve higher-achieving children's ability to support their classmates rather than "just doing the work" for them

(d) The success criteria for the research lessons

- Children recognise independent strategies and be able to recall them when needed
- Children understand the importance of being self-sufficient and know that this can make learning easier
- Children develop skills to solving problems
- Children work collaboratively; team work is more effective

METHODOLOGY
(a) The teaching approaches we tried
<i>The first lesson was a base lesson: input was given to the children but no strategies were put in place. We wanted to see how many children raised their hand, asking for support; how long after the main task started before they asked for support; and how many times they asked.</i> <i>In the second lesson, we introduced one strategy and then monitored the children's responses and how they used the resource.</i> <i>In the third lesson, we introduced two more strategies and called this WWW (Watch, Workout, What's Up?). The children would look to this and go through all three before asking for support from the teacher.</i> <i>In the fourth and fifth lessons, we embedded the use of these strategies. Higher-ability children were given question cards, which allowed them to support their peers. We also spoke to the children about learning from failure and how we should persist when tackling a problem.</i> <i>The sixth lesson was used as an evaluation lesson; we gave the children the freedom to pick their own challenge and strategy. They would work on their own mini project and use all the previous strategies without teacher intervention.</i>
(b) Specific resources we tried
<i>We created a range of resources for each lesson, "work out" cards were given to children to use and follow when they needed support</i> <i>For the "watch" strategy we created tutorial videos for the children to use</i> <i>Question cards were given to the higher-ability children so they could support their peers</i> <i>Have you used the WWW strategy?</i> <i>Why do you think you are stuck?</i> <i>What can you do differently?</i> <i>How can you make this work?</i> <i>What is the next step?</i> <i>We created WWW cards to post around the computer room so they would check what strategy they were using and how they could support themselves</i>

OUTCOMES AND IMPACT
(a) The Impact on pupil learning
<i>Pupil independence significantly increased from the first to the sixth lesson</i> <i>Peer support is very strong</i> <i>Children began using the independent strategies without being prompted by the teacher</i> <i>The fourth and fifth lessons were the turning point for the children's independence</i> <i>Higher-ability children have started asking key questions to their peers and supported them</i> <i>Pupil confidence is higher and have begun building a resilience to problem solving</i> <i>Lower-ability children found "What's Up?" very effective but found the videos difficult to access</i> <i>We would need to look at SEN/AEL resources in Computing</i>
(b) Evidence of impact on pupil learning
<i>The base lesson gave us a good understanding of where the children were currently at. Within 30 seconds of the main task, 4 of the 9 focus children turned to the class teacher and asked for support. They raised their hands multiple times and one child claimed the computer was broken, as he could not solve the problem.</i> <i>During the first 2 lessons, we noticed a strong adaptation to peer support when they were advised not to ask for teacher support.</i>

• Children were familiar with WWW and understood how to access the support materials. Children began working together and solving the problems as small teams. • Higher-ability children, during in the first three lessons, were helping their peers by completing the work for them. After giving them key questions, they supported their peers by asking probing questions and asking if they had tried the strategies. • The evaluation lesson was very successful, all children worked independently or together, not one child asked for teacher support. • Children began to see the problem solving as a challenge rather than a roadblock. They would talk to each other and resolve it together.
(c) Impact on teaching
• Confident teaching in Computing • Planning was informative and well thought through • Team teaching was strong and engaged all the children
(d) Evidence of impact on teaching
• Positive and confident feedback from the teachers who felt they could teach the lessons on their own. • After reviewing the planning, I could see an improvement in structure and the use of computing-specific language, which allowed for a more engaging lesson. • The Computing Instructor met with the teachers before each live lesson and discussed the lesson, which led to a more impactful lesson, which flowed at a good pace.
(e) Impact upon school culture and leadership
• Computing rooms should also be seen as a working classroom with a range of available resources • Blocking computing lessons rather than having one per week • Adapting the WWW strategy around the rest of the school/across all areas of the curriculum
(d) Evidence of impact upon school culture and leadership
• Children were much happier working on their own and with their classmates, rather than asking for help. They wanted to find their own resources - creating a resource bank in the computing room for the children to use would be very useful. • The consistency and pace of the lessons over the two-week period was improved; the children were able to retain their subject knowledge a lot better. The tasks were all completed and the children all had a finished product at the end of the six lessons. • The children had been given a variety of independent strategies in other subjects but not in Computing. They were given time to adapt to these and we even had some children using these strategies in other subjects.

CONCLUSIONS AND RECOMENDATIONS
(a) Our conclusions
• Well-resourced strategies are very beneficial for promoting independence and problem solving skills • Children respond very well to strategies that are part of a life skill (teamwork, watching tutorials, reading manuals/guides) • Children enjoyed learning together rather than depending on teacher input • Creating a working environment in a computer suite has a positive effect on pupils learning. • Team teaching
(b) Recommendations for other interested in researching this area
• Begin by adapting lesson plans to include problem solving as a process and to promote the WWW strategy • Talk to the computing instructor about the creating resources for their lessons • Monitor class and working with higher ability children • Plan team teach lessons together and develop the plans collaboratively