To develop higher order thinking skills in Year 5 mathematics lessons

Table of Contents

What

Impact

Summary

What were your reasons for doing this type of development work?

Key areas to develop identified from Gifted & Talented Classroom Quality Standards (CQS) Audit include providing regular opportunities to use thinking and problem-solving skills and to increase opportunities for learner independence.

In Year 5 Maths Lessons, through observations, I noticed that many pupils were not equipped with the skills or hadn’t been given enough opportunities to think at a higher level or work collaboratively.

From my reading, I was interested to learn that “Schools...need to ensure that young people develop skills and attitudes that employers value...” Gilbert (2006), such as how to work in a team, communicate effectively, persevere through a problem and find solutions.
As part of the Pilot for Gifted & Talented Education, I trialled Belle Wallace's Thinking Actively in a Social Context (TASC) Model to develop independent learning and higher order thinking.

Who might find this case study useful?

- Headteacher
- Middle leader
- Pupil
- Senior leadership team (SLT)
- Subject leader
- Support staff
- Teacher

Key points

**Point 1**

Pupils taking ownership of their learning is key to developing positive attitudes to learning for all.

**Point 2**

Pupils need to explore their ideas through talking and working with others and to reflect on what they have learnt.

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What
Intentions

What specific curriculum area, subject or aspect did you intend to have impact on?

- Problem solving, reasoning and numeracy

How did you intend to impact on pupil learning?

Develop thinking skills and independence in maths by encouraging pupils to work in groups; discussing and making decisions in a social context. Pupils to become actively involved in their own learning on a theme of their choice and have positive attitudes to maths.

What were your success criteria?

- Pupils discussing ideas and working together
- Teacher acting as a facilitator
- Pupils given freedom to choose own theme to investigate, ways of working and presenting
- Pupils self-reflecting about how groups had worked together and progress made with the task
- Pupils able to overcome problems by thinking more broadly

What information or data did you use to measure progress towards your success criteria?

- Logs or interviews
- Observation outcomes
- Pupil consultation data
- Pupils' work

Teaching approaches

What did you do? What teaching approaches (pedagogy) did you use to achieve the intended impact?

- Assessment for Learning (AfL)
- Collaborative group work
- Independent learning
Use of thinking skills

Describe the teaching approaches you used

The TASC Wheel encourages children to work independently in groups to investigate an issue, which is relevant and interesting to them. The teacher acts as a facilitator and questions the pupils to move their learning forward rather than solving problems for them. Pupils develop a range of skills; listening to others, negotiating, learning how to learn, talking about learning and agreeing on a shared understanding of learning goals and how to achieve them. The importance of the TASC Wheel is that the groups have to co-operate, compromise and share out roles. Throughout the project, the groups evaluate the work and think about the next steps. At the end of the project, each group presents their findings to the class and evaluates 'what went well' (WWW) and they thought about 'even better if' (EBI), reflecting on their learning. Leadership roles are also developed e.g. chair, scribe, spokesperson.

Belle Wallace's Thinking Actively in a Social Context (TASC) Model was used with mixed ability groups of four pupils.

In groups, the pupils reflected on what they already knew about ways of presenting data - graphs and charts.

Next, as a group, they discussed possible topics to investigate and then agreed one theme.

The groups used ICT to find data for their presentation.

Assessment for Learning, thinking skills and pupil talk was an integral part of the project.

Every member of the group experienced all of the leadership roles throughout the project and really enjoyed the responsibility.

At the end of the project each group presented their findings and reflected on what went well and areas for improvement.

I observed how well pupils collaborated, made decisions, who the leaders were and how problems were overcome.

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CPD approaches

What did you do? What approaches to CPD and learning for adults were used?

- Classroom enquiry

Describe the CPD approaches you used

The Local Authority Consultant for Gifted & Talented Education arranged a meeting with a secondary colleague who had tried out the TASC Model recently, another secondary G&T Leader, the LA consultant and myself. We discussed our ideas and reservations about using the TASC Wheel. An INSET for TASC Wheel and Coaching was held for teachers from 3 schools to be informed and to feel confident to try out a new style of teaching. Following this training session, I observed the secondary colleague (experienced in using the TASC Wheel) deliver a TASC style English lesson, which gave me the confidence to try it out in my own classroom.

A secondary colleague, the Lead Teacher for Gifted & Talented in her school, and I both decided to trial the TASC Model. We coached each other in the planning of 2 sessions and observed each other teach 1 lesson, giving constructive feedback. This was extremely supportive to both of us and helped us move our understanding of the TASC Wheel forward. Coaching is a great way of supporting professional development as it helps the coachee clarify their thinking and feel more confident to try out something new.

What CPD materials, research or expertise have you drawn on?

Belle Wallace's TASC Model (1993) http://www.nace.co.uk/tasc/tasc_home.htm


Primary Leadership Paper No.24 september 2008 NAHT Publication
Who provided you with support?

- External agency

How were you supported?

- Oxford Brookes University – G&T Education
- National Strategies
- QCA.

I took part in a pilot for Gifted & Talented Education involving 12 Local Authorities across the country with 2 G&T Lead Teachers from each Local Authority. Oxford Brookes University, National Strategies and QCA lead the 3 training sessions over the past year and were interested in our group discussions, particularly thinking about the curriculum for the 21st Century. I carried out action research trialling the TASC Wheel and produced a portfolio detailing my findings, accredited by Oxford Brookes University.

File Attachments

- TASC Lesson Plan (doc 38 KB)

Impact

- On pupil learning

What has been the overall impact on pupil learning?

- Pupils enjoyed taking on leadership roles
- Pupils enjoyed being given more choice in their learning
- Pupils used ICT effectively to find data on their topic and in their final presentation
- Pupils were discussing learning, solving problems for themselves and working in groups.
Thoughts you think are relevant to overall impact on learning

Boys dominated the groups in terms of the themes being selected and some groups found difficulty working together without arguing.

Quotes you think are relevant to overall impact on learning

Pupil quotes:

It's fun, I liked using the computers and art.

It's good to be able to choose the topic and present it how we wanted.

I liked the leadership roles, being chairperson, scribe and spokesperson.

Quantitative evidence of impact on pupil learning

◦ Periodic teacher assessment

Qualitative evidence of impact on pupil learning

◦ Logs or interviews
◦ Observation outcomes
◦ Pupil consultation data
◦ Pupils' work

Describe the evidence of impact on pupil learning

There is no quantitative evidence only qualitative evidence which supports the overall impact judgement on pupils learning:

◦ pupils enjoyed learning using the TASC Wheel approach
◦ work produced met the success criteria
◦ pupils developed life-skills e.g. working as part of a team/group, discussing ideas, making decisions and compromising, evaluating their work, solving problems.

Please see the related information on the summary page for jpgs of the pupils' work.
On teaching

What has been the impact on teaching?

It was interesting to act as a facilitator and stand back and observe what was happening in the classroom. I found it difficult to do but realised how much pupils can or cannot do without the teacher guiding them. It is important to have a balance: ensure that opportunities for collaborative work are planned so that pupils can develop these important life-skills.

Thoughts you think are relevant to impact on teaching

Whole school action - Teachers need to build in opportunities for pupils to learn independently, implementing the TASC Wheel from Key Stage 1 to help pupils develop the skills of co-operation, decision making and presentation.

Quotes you think are relevant to the impact on teaching

Teacher: I feel that we need to give children more opportunities to work collaboratively, develop thinking skills and solve own problems and the TASC Wheel did help develop these skills.

Pupil: We enjoyed learning in this way, it was fun.

Pupil: thought it was fun because we used the computers a lot and used art.

Pupil: I liked being the chair person and scribe.

Evidence of impact on teaching

- Evidence from planning
- Teacher perceptions

Describe the evidence of impact on teaching

Teacher perception was correct that pupils ask for help too quickly without trying to solve their own problems, so more opportunities must be planned for open-ended project work.
Planning showed that teacher acted as a facilitator rather than telling the pupils what to do and encouraged them to think about the learning process themselves. Pupils did learn how to learn throughout the project, but found it challenging as they do not yet have the necessary skills.

On school organisation & leadership

What has been the impact on school organisation and leadership?

- SMT meeting to discuss impact of project and how we can implement this approach across the school.
- G&T and Maths Leaders to lead INSET in Spring Term re: Independent learning in maths, then monitor planning and carry out lesson observations.

Thoughts you think are relevant to overall impact on school organisation and leadership

Shared understanding and action plan to ensure opportunities are planned to develop independent and collaborative learning

Quotes you think are relevant to overall impact on school organisation and leadership

Deputy Head: As a school we must equip our pupils with skills for the 21st Century, mostly ’soft skills’ like cooperation, solving problems, listening to others and communicating effectively. Therefore by planning more opportunities for collaborative learning is way of addressing this important issue.

Evidence of impact on school organisation and leadership

Inclusion of actions in school improvement plan.
Summary

What is the crucial thing that made the difference?

Teacher acting as a facilitator and not solving the problems for the pupils, by questioning them to try alternative approaches.

What key resources would people who want to learn from your experience need access to?

Belle Wallace's TASC Model (1993): http://www.nace.co.uk/tasc/tasc_home.htm

What CPD session and resources were particularly useful?

- Learning from the experiences of others who have tried the TASC Model - other secondary colleagues
- Observing a colleague teach a TASC lesson
- Coaching another G&T Lead Teacher trying out a new teaching style (TASC Model) - planning & teaching
- We supported each other, it helped us to clarify our thinking (See Lauren Carnegie's Related Case Study at the end of the Summary Page).

If another individual or school was attempting to replicate this work, where would they start and what would the essential elements be?

- Read Belle Wallace’s TASC.
- Whole school approach is the best way as everyone could have a go and discuss pitfalls, rather than one teacher trying something out on their own and no-one to share it with.
- Coaching is also very supportive.
- Develop with pupils working in twos or threes first and build up to fours, or just try out with your G&T pupils.
- Essential elements – pupils collaborating, thinking for themselves (not teacher telling), deciding on ways of working and how to present, use of ICT.
What further developments are you planning to do (or would you like to see others do)?

Establish a network of schools to develop and promote strategies to raise the attainment and skills of G&T pupils.

Node information
Attachments Zip:
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File Attachments

- G&T Pilot Action Plan (doc 31 KB)
- TASC Group Work 1 (JPG 2.5 MB)
- TASC Group Work 2 (JPG 2.9 MB)
- TASC Group Work 3 (JPG 2.2 MB)
- TASC Group Work 4 (JPG 2.6 MB)