Using student researchers to explore the impact of a new thinking curriculum on learning amongst Year 7 students

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Abstract
This paper describes how a team of student researchers are being used to explore the impact of a new Thinking Curriculum which was implemented across a school from September 08. The school has a reputation for innovation in Teaching and Learning and curriculum. The decision to develop this new model arose after teachers and senior leaders identified that students increasingly lacked the ability to work independently. This was an issue also identified by the schools involved in the 8 Schools project (DfES 2007). Whilst the development of independent learning is complex, based on the Black and William work (1998), Harrison (2008) suggests that formative assessment is a useful vehicle for developing such learning behaviours. Three key elements underpinning formative assessment have been identified: interaction between teachers and pupils; stimulus and support for students to take active responsibility for their own learning; collaborative learning (Harrison, 2008). Building on these principles, a cross subject steering group of staff developed the idea of a tool-kit consisting of four distinct modules all designed to develop students’ ability to become more effective learners. Influences included Co-operative learning, Costa’s Habits of Mind, visual tools and literacy. The four areas are: Working with others; Developing my thinking; Developing myself as a Learner and Communicating with others. It was also planned to finish the year with an enquiry based summative project to enable staff and students alike to assess their new understanding. The delivery model is through weekly discrete lessons followed by infusion through subject areas; success will depend upon effective transfer which will only occur if the new learning developed through lessons is practised through subject areas.

The school already has effective systems for evaluating the impact of new developments on classroom teaching including Teaching and Learning groups. However, it was felt that in order to get a deeper understanding of what if any impact the tool-kit was having on students, using the students as
researchers may provide extra insight into the quality of the learning emerging and also just how autonomous the students were becoming (Frost et al, 2009; Roberts and Nash, 2009).

The researchers were trained throughout the year in a range of methodologies. Data collection included: pupil questionnaires and interviews; naturalistic and systematic observations; video recording and work sampling. Alongside the work of the student researchers, teachers are also undertaking a concurrent research project to assess the impact on learning from their perspective and so conclusions from both will be compared. Lesson observation, questionnaires and interviews were primarily used to gather data as well as extensive work sampling. The research is disseminated to schools across the country through existing Leading Edge and Training school partnerships and also at the school’s Annual Teaching and Learning Conference.

The researchers were a mixture of Year 8 and Year 12 divided into four house teams consisting of one Year 12 student and two Year 8s. The focus of the researchers was primarily on whether reinforcement through subjects was happening as well as how the new curriculum has affected the learning of Year 7 students. The focus of enquiry is, ‘what additional information does using students as researchers bring to our understanding of how this new curriculum and its assessment develops students’ learning?’ This project builds upon work already undertaken by the school to develop teachers as researchers (Frost 2006; Durrant and Holden, 2006) but is a first attempt to include students in this approach. It is therefore also being used to determine whether the model of student research developed for this project is an effective way of evaluating the impact of future innovations in Teaching and Learning and the implications for assessment.

The paper discusses the ways in which the project has helped the school to understand the potential of using student research as well as gaining a deeper understanding of the perceptions of students for the new curriculum. An analysis of the data gathered will also provide information on how the thinking toolkit has supported the development of more independent learners based on formative assessment principles identified above. This is a radical departure from current assessment practice in the school and has forced teachers to consider assessment policy and practice from the student perspective. It also examines the impact of being a researcher on the students involved including the cross year links developed as a result and explores the reactions of teachers to the project itself in a context where student voice is relatively new.
Introduction

Nationally, there has been a move towards developing students to become effective life-long learners with the ability to work autonomously and as part of a team. This has resulted in the development of the QCA model of personal, learning and thinking skills (PLTS) which aims to provide a framework for describing the qualities and skills needed for success in learning and life.

Likewise in 2006, and prior to the publication of PLTS, the staff at St Thomas More reported as part of their annual that despite excellent academic achievement (GCSE results are consistently 70%+ for 5+ A-C including English and Maths), students were increasingly demonstrating an over-dependence on their teachers and a seeming inability and unwillingness to work independently. This was an issue also identified by the schools involved in the 8 Schools project (DfES 2007). Subsequently, the SLT asked Department teams to identify the qualities and attributes wanted for St Thomas More learners. The results of this consultation included:

- Responsible, Hardworking, Independent
- Socially and morally mature, flexible, team workers, good communicators
- Determined, Persistent
- Creative, risk-takers
- Analytical, literate,

The attribute that seemed to resonate particularly with staff was that of persistence. This was constantly referred to as something our students did not demonstrate, giving up at the first instance when learning became more challenging.

And so, it was decided to research into ways to improve students’ ability to work autonomously. Members of the SLT and Heads of Department were involved and the ensuing research included visited schools in Liverpool and Cheshire where strategies were already in place. One school had adopted the RSA Opening Minds model and collapsed a large part of the curriculum for their year 7 classes. They had also adopted a set of visual tools that had been explicitly taught to both teachers and students and were extensively planned into Schemes of Work. The Cheshire school had adopted Spencer Kagan’s Co-operative Learning model throughout Key Stage 3 and this eventually rolled into KS4 and KS5.

Staff observed one example where middle ability Year 7 girls were asked to compare information and present it to the class. They chose an appropriate way to do this from a selection of visual tools and worked effectively as a team to prepare their presentation. When questioned by the STM team they were able to explain their choices and the responsibilities of each of the team roles adopted. In the Cheshire school there were numerous examples of high
levels of engagement in classrooms with purposeful interaction between students and teachers as well as students with students. Staff returned to St Thomas More with a strong desire to provide students with a set of tools, a ‘Thinking Tool-kit’ that would help them to develop the skills necessary to become effective, more autonomous learners.

Over the next academic year a cross-curricular steering group consisting of SLT, Heads of Department, and members of the Teaching and Learning team worked together to develop a model for the St Thomas More Thinking Tool-kit. Four modules were finalised to address the issues identified by teachers. Whilst the development of independent learning is complex, based on the Black and William work (1998), Harrison (2008) suggests that formative assessment is a useful vehicle for developing such learning behaviours. Three key elements underpinning formative assessment have been identified: interaction between teachers and pupils; stimulus and support for students to take active responsibility for their own learning; collaborative learning (Harrison, 2008) and these can be found in the four modules developed by the steering group to deliver the Thinking Tool-kit. As well as using Spencer Kagan’s Co-operative learning to develop good quality interaction, further research was undertaken with a consultant recently returned from New Zealand where there has already been a movement towards developing these skills with students and where there is much existing practice and expertise to draw from. As well as introducing a range of visual tools that could help students to become more effective thinkers, Art Costa’s Habits of Mind (Costa and Kallick 2000) were highlighted as a mechanism for helping students to become better self-managers, taking responsibility for their own learning.

These are depicted in Fig. 1. A plan was developed to cover the next 5 years.

Fig 1. Overview of Tool-kit and links to desired Learner outcomes

<table>
<thead>
<tr>
<th>Learning with Others</th>
<th>Team workers, good communicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing Thinking</td>
<td>Independent Creative</td>
</tr>
<tr>
<td>Developing Myself as a Learner</td>
<td>Responsible, Hardworking</td>
</tr>
<tr>
<td>Communicating with Others</td>
<td>Literate Analytical</td>
</tr>
</tbody>
</table>
The delivery model agreed with staff was through an additional discrete 45 minute lesson every week. The timetable had to be adjusted accordingly with lessons reduced from 70 to 60mins. As well as this, departments were asked to ensure that as each module progressed, Year 7 subject lessons would incorporate the new tools into lessons to reinforce learning. This model for ensuring transfer takes place is shown in Fig 2.

Fig. 2 Delivery model adopted for Thinking Tool-kit

**Delivery Model (2)**

1. Direct Instruction
2. Standard use infused through curriculum
   ---------------------------------------------------------------------
3. Transfer
4. Independent, appropriate selection

**Designing the discrete lessons**

Members of the initial steering group then led smaller sub-groups and developed the discrete lessons necessary to lead on each module. The staff represented a good cross-section of subject areas and ranged in experience from NQTs to skilled Heads of Department. This was a deliberate strategy to ensure that the lessons devised were accessible to all staff and not biased towards any particular discipline. Care was taken to ensure that the lessons were subject content free and often used stimulus materials readily accessible to students such as film clips. The final lesson in each module was designed to assess how well the students had grasped the skills developed. Over the course of the year it was interesting to note the high levels of ownership felt by each of these sub-groups and how when difficulties arose these staff were visible in their defence of the new curriculum innovation.
Training the Teachers

One last point when considering context is the huge investment in time and resources this curriculum innovation involved. As well as the input from all the aforementioned groups, all staff needed to undertake three days of inset to prepare them to deliver the Co-operative Learning structures and the visual tools needed for Module 2. In particular, teacher time and energy had been invested into the first module ensuring that staff could confidently use about fifteen Co-operative Learning structures. These then needed to be incorporated into lesson plans throughout Year 7’s curriculum, across all subjects. A steering group of 12 staff received more in-depth training, five days over the course of the year in Co-operative Learning. The experience of this group was invaluable in ‘trouble-shooting’ when necessary. Throughout the first year of roll-out 2008-9, staff also needed to undertake further training to prepare them for delivery of Modules 3 and 4. The impact upon Year 7 Schemes of Work meant that there was additional pressure on Heads of Department who needed to ensure that SOW were reviewed throughout the year.

Aim of study
The aim of this study was to work with student researchers to gauge whether or not there was any evidence in Year 1 that transfer was taking place and also to explore the perceptions that students had towards this new curriculum (Frost et al. 2009; Roberts and Nash, 2009). Although research was already established with teaching staff (Frost 2006; Durrant and Holden, 2006), students had not been actively engaged in any research studies in school before, and so, this study also aims to determine whether the model of student research developed for this project is an effective way of evaluating the impact of future innovations in Teaching and Learning.

Format of research team
As the study concentrated on Year 7 students, it was decided to involve Year 8 students as the primary researchers, helped by Year 12 students. Potential researchers were nominated by their tutors and House Heads who were asked to recommend students who were reliable, confident and able to speak to different groups of people. The final team consisted of an equal split of boys and girls who came from a range of academic ability.

The structure of the research team mirrored that of the House system in operation at St Thomas More. The research team was trained by a Consultant from the LA who worked with the team on research methodologies and protocols. The team assembled before every new Thinking Curriculum module to plan what they wanted to research and the most appropriate methodology to use. They then met to gather any data needed and to execute any initial data analysis. From the outset the team knew that at the end of the year they would present their findings to the Senior Leadership team and to other students through the publication 'More News.'
The overarching question the researchers decided to explore through their research was, ‘Has the Thinking Tool-kit helped us to become better learners?’ The wealth of data they subsequently generated is immense and so this paper will draw upon the main points the researchers highlighted to the SLT. This covers the first three modules of the Thinking Curriculum only. It will also briefly reflect where appropriate upon findings from parallel research undertaken by staff, in particular, an examination of data generated by the end of year summative project.

The paper will also explore the reactions of the Thinking Tool-kit on older students as this became an area of interest to the researchers over the course of the year. Finally, this paper will investigate some of the inevitable tensions that arose during this period of change within the school curriculum and reflects upon the understanding gained resulting from its implementation.

**Module One – Working with Others**

This first module aims to explicitly teach students skills such as: listening well to others; supporting and celebrating with each other and taking turns. The vehicle by which this is delivered is Spencer Kagan’s Co-operative learning. In many ways this module required the greatest ‘leap of faith’ from staff. For many teachers it involved the most radical changes to their teaching and the structures involved seemed fairly simple on the surface but actually were found to be very complex.

This was the first research undertaken by the team and they decided to explore whether Year 7s were enjoying the Thinking Curriculum lessons and if they felt that they were helping them to become better learners. Staff working with the researchers also asked them to research whether or not students were using Co-operative Learning structures in all their subject areas. They chose to use student questionnaires and small group interviews as their initial methodologies.

The Student researchers devised a set of questions for their questionnaire and also a supplementary set of questions to be used to interview groups of Year 7s. These interview questions were designed to question more deeply some of the themes in the questionnaires. The Year 8 researchers designed these questions themselves with some help from the Year 12s to ensure they were open-ended and facilitated extended answers.
From the returned questionnaires (185/235), the researchers concluded that the majority of Year 7s were enjoying the Module 1 lessons as 165/185 answered ‘Sometimes’ or ‘Yes’ to question 1, with only 20/185 saying ‘No’. Similarly, when asked if their learning had been improved (Question 4), the vast majority said ‘yes’ or ‘sometimes’ with only 50/185 answering ‘no’. The response to, ‘Do you use it in your lessons?’ (question 2) was also positive with only 2 answers of ‘no’. There was an interesting response to the final question, ‘If you had a choice, would you carry on with Co-operative Learning structures?’ where the answer was almost completely divided, 93 saying ‘No’ and 98 saying ‘yes’. The researchers decided to use their interviews to explore these answers in greater depth.

**Interviews**

The researchers then went into 7/8 Pastoral groups during the Wednesday Pastoral session and interviewed 6 – 8 Year 7s. All Year 7 Pastoral groups were included and consequently the sample size of students interviewed was 54. Gender and ability were mixed throughout the groups. The timing of the research is an important point to consider. It occurred five weeks into the first module, where the students had had a full day of Co-operative Learning training and an additional four other discrete lessons. These structures had been reinforced throughout their curriculum subjects. At this time, they would have been introduced to most of the structures in module 1 but not the full range.
All the student researchers were involved with the analysis of the data generated from the questionnaires and interviews. In order to explore the interview questions, the researchers read all the returns carefully and in pairs or threes made careful notes of any emerging themes they could identify in the answers. Initially these were examined for individual pastoral groups; these were then collated into a complete picture across Year 7.

**Emerging Themes**

Common themes to emerge from the interviews included that Co-operative Learning is a good way to make new friends and get to know the other people in your class. One group stressed that it was good as it helped you to learn and was new. The word ‘fun’ emerged from several of the groups; however in a few instances, students did suggest it was boring, seemingly because they found it repetitive. When asked, ‘What lessons have you used it in?’ the most common answer for this question was ‘all of them’. Students gave long lists of subjects where they could think of examples where it was used which covered almost all the different subjects in school and corroborated with evidence from the questionnaires. When asked, ‘Have you found it useful within the subject you are doing it in? How has it helped you learn the subject?’

Many students reported that the structures had made lessons easier because students got a chance to hear other people’s ideas. Quite a few references to Maths lessons were made as examples of where this was the case. Another related theme to emerge suggested that the structures made students think more. There were however a few comments from individual students suggesting that they were able to waste time and talk more, but these were in the minority.

As with the questionnaire answers most students said that they were enjoying the structures. The ‘no’s were in the minority. Interestingly the structures that the student said they liked the most often involved movement, such as Quiz, Quiz, Trade and Stand up. Hand up, Pair up. Students also seemed to like structures such as Fan ‘n Pick, where the whole team is working together at the same time with distinct roles. The most common structures used such as Round Robin and Rally Robin were also mentioned however there were some contradictions with the next question where groups of students also said they found these boring and repetitive.

A strong theme emerging was to reduce the amount of repetition, in particular of the Rally structures. Students commented that they were doing these in all their lessons and this made them boring. This was also the case with the quiet signal. A few groups mentioned they wanted to have more writing; this is interesting as the focus of most of the structures introduced in discrete lessons is to manage talk. There are lots of opportunities for structures to include written work, but these might not be recognised by teachers.

When questioned about the benefits of using structures in lessons, the overwhelming message to emerge was that the structures were benefiting students socially, which echoes the views of the class mentioned above, However, most groups felt this was a good thing. Comments such as, ‘it
helps you meet new people' and you ‘find new friends' were common. Another strong theme to emerge concerned helping understanding. Students said that they were getting more ideas and if they got stuck there were people to help them out. One group said that it helped them to concentrate more as they knew they might ‘get picked’. Teachers also commented on greater levels of concentration in lessons as students who previously could ‘opt out’ of activities, were more reticent to do so. This resonates with one of Co-operative learning’s principles that students need to be ‘kept on the hook’.

The researchers decided to re-visit Co-operative Learning a few weeks later. The reason for this was to see if when the focus was not entirely on Co-operative learning, if students were still using the structures and doing so effectively. During the lesson, Year 7s were asked to work in their teams using the structure of Think Write Round Robin. The researchers decided to observe all members of the team during this activity and note down their behaviours. They used through two types of observation: naturalistic and systematic.

They used naturalistic observation, using digi blue cameras to video how the group worked together alongside Systematic observation using tally charts to find out the frequency of the students who did each particular behavioural observation. They created tables and used charts and graphs to display the overall findings.

This was a graph of all of the findings put together. It showed that the most frequent behaviour was talking. Listening and writing were quite close together with a difference of 6. Interestingly out of all 8 pastoral groups studied, there were only 6 occasions when the research team could say that one pupil gave another praise.

Fig 4. Summary of Behaviours from all teams observed.
This is a graph of a particular group of four pupils in 7B1, showing how often each pupil does each activity (Talking, Listening, Writing and Praise). This graph shows that the most frequent activity as a group was talking, with writing and listening of equal frequency. Again, it is interesting to note that none of the students praised any of the others.

This graph also showed that all of the students equally participated in each of the activities, and there wasn’t a dominant pupil who took control of the group.

Fig. 5 Summary of participation of 7B1 team

Analysis of filming using the digi-blue cameras corroborated most of the findings from the tally charts. Teams observed were generally participating equally in the structures, with most students participating. This has also been supported by classroom observation and comments from teaching staff who have observed that when structures are used there are higher levels of equal participation in lessons. Again it was striking to note that in all teams observed no praise was offered by students to their team mates despite that being a step within this structure.

The research team was most interested in the lack of praise given by any of the students observed. Both the Year 8 and 12 students said that this resonated with their own experience in lessons. They discussed this with one another and other classmates at length and later concluded that students perceive praise to be something that a teacher gives to a student. One of the Year 8 researchers said,

“It suggests someone has power over another.’ Consequently if a student praises another student it is often seen to be false or patronising.”

Later observations in lessons supported this supposition. Students were very hesitant to praise one another or if ‘forced’ to through a structure used humour to diffuse their discomfort. When a Co-operative Learning Consultant observed in school later in the year, he commented that teachers were not adequately explaining to students the purpose of praise and why structures were being used to help them to rehearse this skill. Interestingly teachers
also said they found it hard to give or receive praise themselves with their own peers. There was a strong feeling that praise must be genuine and that we had built in ‘false’ praise routines into our Tool-kit lessons which had then filtered into other occasions when subject teachers were using structures exacerbating the problem further.

Module 2 – Developing My Thinking

In this module, students learnt how to use a range of visual tools to help them organise and make sense of their thinking. The researchers wanted to find out. **Do the Year 7 students know which tool to use to help them with a particular task? Do they know why they use a particular tool? What is the quality like when they use these tools?**

The house teams revisited Year 7 classes worked with one team from each pastoral class. The resulting sample was of 32 students from a Year group of 235. The team was selected by the teachers based on students who would not mind being filmed and was not based on ability. At the end of the lesson, teams were asked to carry out three tasks and the researchers were asked to gather data in three different ways depending on the task. This took place at the very end of the module and Year 7 students were given a quiz to assess how well they had learnt the different tools. The researchers just needed to analyse the answers to these questions students; this would inform them if Year 7s knew which tools to use and when.

They also listened to pairs of students explain why they had chosen a particular tool and used digiblue cameras to record these dialogues. The cameras were used to take a snapshot from each team of their work. They also collected samples of work.

They concluded that the students knew the names of all the tools and when to use them for particular tasks. Their explanations of why they had chosen particular tools were good and demonstrated an understanding of what the tools could do. However, the quality of how they used the tools was not consistent across the classes. They felt that this could be for the following reasons:

- there was a general lack of time to complete the tasks although the quality was of a high standard.
- the tasks set in this lesson were too long and Year 7s were spending too long on certain questions.
- It could also be because they had a lack of deeper understanding of some of the tools and needed the teacher to explain further (cause and effect, relevant/irrelevant)
This final point is also supported from evidence from classroom observation and feedback from teaching staff who felt less confident with using these tools. Observation and work sampling also indicated that although some tools were being extensively used in lessons, this was on occasions simplistic. Tools were used individually and not in conjunction with others; their full potential was not being exploited.

Developing Myself as a Learner

The aim of the third module was to find out about how well the students had understood the concepts of Persistence and Impulsivity; if they were able to apply these concepts to themselves to improve their own learning skills. The researchers used interviews, questionnaires, observations and also devised an activity to specifically measure students’ persistence. This was a puzzle that consisted of strips of paper which the participants had to use to make as many squares as possible with no time limit. Within the interview, researchers asked Year 7s to explain targets they had set themselves on persistence earlier in the module and to comment on whether they had met them and had become more persistent.

<table>
<thead>
<tr>
<th>Student code</th>
<th>CF</th>
<th>BF</th>
<th>TF</th>
<th>JF</th>
<th>CM</th>
<th>BM</th>
<th>TM</th>
<th>JM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Total time taken</td>
<td>10 mins</td>
<td>11 mins</td>
<td>52 secs</td>
<td>5 mins</td>
<td>5 mins</td>
<td>3 mins</td>
<td>4 mins</td>
<td></td>
</tr>
<tr>
<td>No. Squares made</td>
<td>26</td>
<td>19</td>
<td>3</td>
<td>20+</td>
<td>14</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Additional observations</td>
<td>Asked for reassurance several times. Said, ‘Can't do it’ and sighed, then continued.</td>
<td>Asked questions and tried again.</td>
<td>Complete task straight away</td>
<td>Made 11 straight away asked for help and tried again. 3 attempts</td>
<td>Didn't ask for help</td>
<td>Stoppe d and started again several times</td>
<td>Confused, uncertain at start. Tried lots of different ways.</td>
<td></td>
</tr>
</tbody>
</table>

Fig 6. Persistence activity: summary of data from 8 participants
This was the smallest sample size in the entire project with only 8 students from Year 7 interviewed. From the activity they found that generally female participants persisted longer than the males and succeeded in producing more squares. They also noted that the girls looked for reassurance that they were doing it correctly. Males took less time at the activity and made less squares but they worked more independently. The researchers were surprised how the Year 7s persisted with the task for a significant amount of time. From their interviews it was noted that the Year 7s understood what persistence and impulsivity meant but as they had covered impulsivity more recently some got the two concepts confused. What was less clear was if the Year 7s had been able to apply this to their own learning. When asked about their targets for persistence some of the students were not aware of it. The researchers concluded that this is because some hadn’t completed this task in the lesson or some had just forgotten.

Part of the teacher research into this module involved sampling of student diaries where these targets are recorded. All eight tutor groups provided copies of the targets set from one team. The total sample size for this was therefore 42/235. Data from this trawl reiterated that not all students completed this task. One tutor group had not completed the task at all. Tutors commented that there was insufficient time given to this in lessons. Where targets were set they were often of good quality and personal which suggests that they were relevant for the students.

“In Geography I am going to try and think about the question before I put my hand up to answer.”

“(Maths) When I’m stuck, push on.”

“When I’m stuck on something in Biology, I will recap on what I learned before I ask the teacher.”

“When I don’t know what to do, I won’t count on my friends to do all the work.”

This resonates with comments from teachers within school who have suggested that they have been able to have meaningful conversations with students around these two concepts and have found it useful to have a common understanding with students of these particular habits. However, what was noticeable from many of these written targets was that students did not say how they would achieve their target. Part of the module had included using acronyms to help the students think of ways to become more effective at persisting and managing impulses. These were not referred to in any of the student targets. Where there is evidence of these acronyms being effective is in one tutor group where the Tutor and Co-Tutor made a Persistence wall display. Here the students thought of their own examples and these were referred to throughout the term. The two staff involved felt that with this constant process of review their tutees developed a sound grasp of the concept of persisting and how they could personalise it to their own learning.
**Perceptions about the Thinking Tool-kit with older students**

At about the time that the first data set was being analysed in early October, staff began to report that older students, mostly Year 10 and above were beginning to show some hostility and resentment towards this first module. Students renamed the weekly Thinking lesson as ‘Kagan’ and comments such as ‘babyish’ and ‘patronising’ were being used. In particular the names of the structures were seen to be ‘young’ and ‘too American’. The researchers commented on this when they met and what began to emerge was a real lack of understanding amongst older students about the purpose of the Thinking Tool-kit. It became apparent that they did not value the skills that the module was trying to develop. The Sixth form in particular were unhappy that they were studying essentially the same skills as much younger students. An explanation of the reasoning behind the entire project had been given by tutors to their individual classes at the beginning of the year but there were most likely inconsistencies in how this central message was delivered. What started to emerge was that the attitudes of various tutor groups depended on how skilful and confident the teacher was in delivering the materials.

The second and third modules were received much more favourably by older students who could grasp the relevance of learning visual tools, in particular for revision. Tutors reported that exploring ‘Persistence’ with KS4 and 5 students seemed to resonate with them and led to worthwhile discussions around the whole notion of ‘sticking’ with something and ‘not giving up’. However, the misconception that Thursday mornings were ‘Kagan’ lessons continued and the fundamental idea that the Thinking tool-kit was to help students become more effective learners appeared to be lost for many. The steering group ran a series of School Assemblies to address this issue and staff were briefed in meetings about the importance of continually reassuring students as to the relevance of the Tool-kit to their studies and future working lives. This was certainly a major learning point from Year 1 and there will be a much greater emphasis in Year 2 to explain the purpose of the Tool-kit to students.

What was very interesting to the staff working with the researchers was how at the start of the project they shared many of these more negative perceptions and were able to provide us with useful insights. However as the project progressed, they began to defend the tool-kit to their fellow students. In particular the Year 12 students started to make comments such as, “I’ve seen this working with younger students, - it does help them.”

“These Year 7s have a real advantage over us. They will be so much better than us when they reach the Sixth form.”

At the end of the year these students were happy to address other students in end of Year events to talk about their experiences and how they viewed the project as a whole. This was certainly one of the major benefits of working with student researchers.
Summative Project Results

Although the student researchers were not involved in exploring data from this activity (occurred in final week of school year), some of the initial findings from this process have been included in the study. This is because it provides some interesting insights into whether students throughout the school have managed to transfer elements of the Thinking tool-kit. St Thomas More is hoping for a rebuild in the near future and so a team of architects have drawn up plans for a new school fit for the 21st Century. The architects wanted to gain the student perspective and so a design project was identified. Eight areas within the new school were chosen such as the dining room, library, and Head teacher’s office. Students were given one and a half days to work in teams and prepare a presentation that would outline their ideas. It was stressed that a large part of this presentation should involve meeting the needs of the clients that used these areas and also reflecting upon how they had worked together as a team and which thinking tools they had used to organise their ideas and shape their presentation. The project was based on an enquiry model so apart from minimal client briefs, general plans for the new planned spaces and suggested websites, students were left on their own to devise their new school. In order to help them with the reflective part of the project, teams were given a Thinking wheel to complete as their project progressed (Fig. 7 below). The inside circle of the wheel provides general prompts such as, ‘How can we organise our information and ideas?’ There are no references to any of the Thinking tools, but these are listed in student diaries and students were directed to using these. The most successful teams went through two qualifying rounds during the second day and 16 teams from across the school were then involved in the third final round where the top eight teams were chosen.

Year 7 team Thinking wheels were collected at the end of the process and analysed. Feedback from the judges was also collated about the nature and quality of reflections from teams during their presentations.
Fig. 7 Thinking Wheel proforma used for Summative project

Probably the most noticeable and gratifying observation throughout the two days was the high levels of student engagement and enjoyment during the project. Senior leaders and judges (architects) moved around pastoral teams and spoke to large numbers of students. Staff commented that even the older students who had been more reticent about the Thinking Tool-kit were positive about the project and were using the tools taught throughout the year. Several comments were made by tutors that the ‘penny had dropped’ with these students and that they could see the relevance of the tool-kit now. There were numerous examples of these noted and used in innovative ways. One team of Year 10 girls had used the teacher’s white board to record their initial ideas and then used organised these into a key point plus tool. There was also a list of connectives recorded they had used to sequence these ideas. This was then photographed and used as evidence in their presentation.

Many teams had used the Rally Robin structures to generate their initial ideas and again students themselves were noticing that this was an effective way of generating lots of ideas without anyone dominating or fighting about which
ones were best. There were two pastoral classes where the teams did not work effectively together at the start of the project: their tutors used some team building structures to encourage the teams to get to know one another and build relationships with other team participants. Generally tutors were very positive about how the students had worked together.

Analysis of the Year 7 team wheels demonstrated that a wide range of tools were used. In order to decide which space to use the majority of teams cited using a Rally Robin to generate ideas. Using the Think, Write, Round Robin also featured,

“*We will decide on our space by using, Think Write Round Robin, because you can hear everyone's ideas and write it down so you can discuss the ideas and settle for what you want.*” (Team 7JF1)

Several teams decided to use a grouping tool to organise all the reasons why a space should be chosen. Some teams took this further and finished by using a comparing tool to see the advantages and disadvantages of particular choices. When it came to organising their thinking, it was clear that the key point plus tool was the most popular.

“*Use key point tool so that we can clearly see the information we have and look over it to see if this is a good idea and check everything is organised.*” (Team 7JF1)

This was confirmed by the winning presentations that generally used this visual tool in the early part of their presentations. The sequencing tool was also cited as being used to organise final presentations. There were a few references to the connectives featured in Module 4 but these were in the minority. Interestingly there were very few mentions of tools that would probably have been inappropriate in this context eg. cause and effect tool.

Overall the consensus from staff was that the project demonstrated that students had a good grasp of several of the tools and were able to use them effectively in a new context. There was even evidence that they were combining tools together and applying them in more sophisticated ways than earlier in the year. There was also an agreement that older students in particular had grasped the relevance of the Thinking tool-kit and were starting to see its application and benefits.
Year 1 Conclusions

(For this section the conclusions drawn refer primarily to Year 7 students. Where older students are included this is always indicated).

This curriculum innovation has been an enormously complex and time consuming project, however there have been a number of positives that have made this a worthwhile venture and something we will continue to pursue.

Benefits

The Thinking lessons developed by the steering group and sub groups were of a high quality and delivered well by most teachers. The new tools were successfully built into Departmental Schemes of work to ensure students got the chance to apply them across all areas.

Throughout the year there were small indications of transfer of skills taking place. Students knew the names of the tools and could use them in the Thinking Curriculum lessons and in their subject lessons. However, the summative project gave them a real opportunity to apply these to a totally new situation and students of all ages were able to do this well for a wide range of tools.

Older students were initially resistant to the idea of the tool-kit but the summative project seems to have made the ‘penny drop’ for a number of them.

Teachers and Year 7 students report that using Co-operative learning structures has had positive effects socially. The students feel they have made more friends and are able to work with more people. Teachers have also noticed that students are mixing more effectively in lessons.

Students have noticed that structures help with their learning as they acquire a greater variety of ideas in lessons. Teachers have noted that there is more equal participation in lessons as structures ensure that more students are ‘on the hook’ than in the past. This has also been confirmed through lesson observations.

A huge benefit has come from working with student researchers. They have been able to provide genuine student perceptions that are not apparent from teacher research alone i.e. Attitudes to praise. They have become powerful advocates for the Thinking curriculum for both staff and other students.

Areas for development

We need to explain what we are doing and why to our students more often and centrally. This can be done powerfully through assemblies and also via more overt use of posters and displays around school. The Tool-kit already benefits from good quality branding, next year we should draw more from students’ own work and comments.
The least understood module was Working with Others (based on Co-operative learning). Students are able to follow the structures in lessons, often know the routines well and younger students enjoy them. However, the underlying skills they are designed to develop have not been routinely identified and explained to students; consequently students are not experiencing the full benefit of these structures. This is a training issue that will need to be addressed next year. The complexity of Co-operative learning was not fully appreciated as it was rolled out to large numbers of staff which is perhaps inevitable with so many changes being implemented simultaneously.

Our older students were surprisingly resistant to change. In particular these older students did not enjoy co-operative learning. They found it uncomfortable having to work with different people; they felt patronised by the names of the structures and associated it with younger children. Comments from some Sixth form students indicated that they only value work which leads to exam passes: they don’t understand the concept or relevance of being effective learners and the implications of this for adult life.

Repetition is an issue with structures: we need to develop a wider repertoire for teachers and may even need to assign particular structures and tools to subject areas.

Some of the visual tools from module two have not been fully understood by Staff and students, namely the cause and effect and relevant/irrelevant tools. Work needs to take place next year to encourage students to combine tools to tackle more complex assignments.

We need to expand work from Year 1 to develop better ways to help students assess where they are in these skills and what they need to do to improve; in particular with Habits of Mind such as persistence.

The amount of new knowledge required for teachers has had significant training implications for staff, in particular those who have developed the tool-kit and delivered this training. Next year we should involve more staff in this process.

With such a wide coverage some of the tools have only been grasped superficially by staff. These will need revisiting next year alongside the new tools for Year Two.

References


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