Introduction

Sullivan Upper School is a voluntary grammar school with an approximate enrolment of 1000 pupils. This case study focuses on how pupils in Year 10 use e-portfolios for peer and self-assessment of STEM-based project work in Technology and Design. It explores how using an e-portfolio can enhance the development of Thinking Skills and Personal Capabilities (TSPC), in particular those of Self Management and Working with Others, and how it can be used to support peer and self-assessment. The STEM project is enquiry-based and challenges pupils to create and build a model stage that could be used to create a 'real' stage as a venue for a charity event. This project features in the CCEA STEM case studies: *Staging an Event*. It can be found at:
www.nicurriculum.org.uk/STEM/

School Assessment Policy and Practice

The school's assessment policy and practice is regularly reviewed as part of its self-evaluation process. Assessment forms a key aspect of the School Development Plan. Assessment is an integral part of teaching and learning that is reflected in policy and practice. Assessment for Learning (AfL) strategies support pupils to become more independent learners and help to improve their learning. Assessment is also used for summative purposes to provide essential information about pupil performance at key points in their subject learning. Assessment information is recorded and used to monitor and track pupil performance and progress over time and to set individual learning targets.

Assessment Planning

Assessment at Key Stage 3 is planned as part of a whole-school collaborative approach. This approach is led by the vice principal with responsibility for the curriculum supported by an Assessment Committee, senior management team and heads of department. Planning is part of the school's self-evaluation process which is used to identify areas for improvement in assessment, teaching and learning and included in the School Development Plan.

The Stage Project

The stage project runs over ten weeks and is comprised of a series of enquiry-based tasks designed to support pupils to develop skills, capabilities, subject knowledge and understanding. The project activities provide naturally occurring opportunities for group work and for pupils to acquire and develop their capability to work with others. The activities also provide a way to assess the Working with Others strand of Personal Capabilities.

At the start of the stage project, pupils organise themselves into groups of three or four and work together throughout the project on different tasks. The main project tasks include:

- researching and selecting a cause or charity to support by holding a promotional event;
- using ICT to design a promotional logo and slogan;
- using ICT to design an e-portfolio home page and content;
- producing a mood board;
- using CAD to design staging for the event;
- producing promotional materials, including a short movie clip;
- planning and manufacturing a stage model; and
- presenting group work to the class.

The project tasks are summatively assessed with each of the main tasks marked against assessment criteria and scored out of 10. The project contributes to 20 percent of the summer examination marks in Technology and Design. Although the tasks are used for summative purposes, the teacher also uses AfL strategies to help pupils become more independent learners and to improve their learning.


Pupils working on their stage project

Teaching and Learning in Technology and Design

At the start of the project the teacher explains the purpose of the project, the work involved and the time for completion. The TSPC are taught alongside subject knowledge and understanding through an infusion approach (CCEA, 2007). Typically, lessons follow the launch, activity, debrief model (ibid.) with activities being set as a learning challenge. At the start, or launch, of each task the teacher involves pupils in discussion about the purpose of the task. Pupils are encouraged to explore their ideas and to ask questions to clarify their understanding. The teacher explains the intended learning outcomes and models the capabilities they are required to demonstrate. The teacher and pupils also talk about what is required to successfully complete the task and the success criteria that their performance will be assessed against. These include knowledge, understanding, skills and capabilities (Appendix A).

To make pupils aware of expected standards for each task, the teacher provides examples of pupil work from previous projects, including logos, stage models and mood boards. The teacher discusses their key features and why they were considered examples of good work. Pupils are involved in the discussion and encouraged to think and ask appropriate questions about how they will manage and plan their work. This provides a focus for the development and assessment of the Self Management strand of Personal Capabilities.
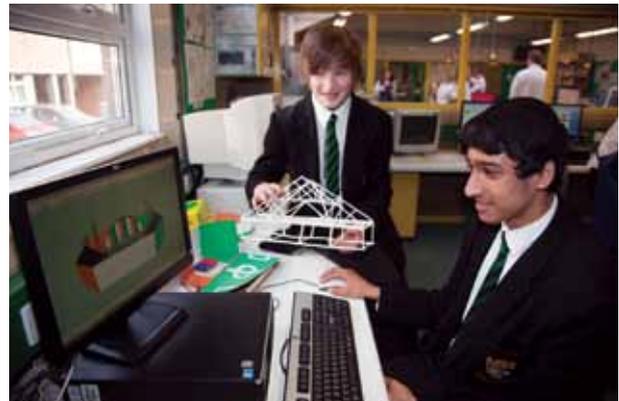
Pupils using ICT to design stage models

Using the e-Portfolio to Capture Pupil Learning

The e-portfolio is central to the project's success with pupils. Using the e-portfolio encourages pupils to take greater ownership of their learning and allows them to personalise it. This is reflected in how pupils personalise their e-portfolios. For example, pupils design their own format, content and pages, using sound, animation, photographs and videos to create their own brand of learning.

Pupils use the e-portfolio to capture key aspects of their work, to set personal targets and to track, manage and record progress over time. Pupils proudly showcase their achievements in different ways to different audiences and for different purposes. For example, pupils show and share with peers, parents, and other teachers what they have achieved.

Pupils often make effective use of audio and video to reflect on their work and discuss areas for development. Ongoing assessment can easily be facilitated, using a daily video/audio diary where pupils can discuss what has gone well and where there is room for improvement.

Pupils using e-portfolios to review their learning

Using the e-Portfolio to Enhance the Development of Pupils' TSPC

The project aims to encourage pupils to take greater responsibility for their own learning. The processes involved in using e-portfolios enable pupils to acquire and develop Self Management capabilities. For example, at the start of the project pupils use their learning logs, which are part of the e-portfolio, to plan, organise and prioritise their work. They also set and record personal learning targets for each task, end of project goals and deadlines for completion.

At the start of the project the teacher gives direction to pupils about using e-portfolios for managing their work and how e-portfolio evidence will be used to support peer and self-assessment strategies. The teacher encourages pupils to be selective in the work they choose to record. Pupils learn to be more discerning about the quality of their work, as they have to judge how good it is and decide if they need to make improvements and whether or not to include it as evidence of their performance. The work record, in addition to information from the personal learning log, provides a narrative of pupil progress that is a rich source of evidence for peer and self-assessment.

These processes help pupils to become increasingly independent learners. They are also developing the skills required for effectively Working with Others and beginning to recognise their peers as a valuable learning resource. This gives pupils an opportunity to build relationships with peers based on co-operation, trust and mutual respect.

Using an e-Portfolio to Support Peer and Self-Assessment

Peer Assessment

The e-portfolio provides evidence for use in peer assessment activities that are a regular feature of the project. This allows pupils to gain an insight into others' work and different approaches. Peer assessment was carried out by groups of three or four pupils who were already familiar with each other, from their project work, and with the basic rules of peer assessment. These rules include showing respect for others, listening to the views of others, and making constructive suggestions.

Pupils use strategies such as 'two stars and a wish' or judge each other's work against agreed success criteria. For example, pupils use 'two stars and a wish' when assessing promotional logos and slogans and use agreed success criteria when assessing their stage models (Appendix A).

At the beginning of the project, pupils discuss and agree success criteria for assessing their ability for Self Management and Working with Others. They use these as a focus for peer assessment. Pupils are able to chart and assess their own progress as they work through different tasks. During peer assessment, pupils access their learning journal records and use photographic and video evidence to illustrate examples of how they meet certain success criteria. Pupils assess each other's work in turn with a view to helping their peers to make improvements. The pupil whose work is being assessed takes note of their peers' comments and records them for future action, sometimes as new or revised targets.

During peer assessment the teacher acts as a facilitator, encouraging pupils to ask meaningful questions. Throughout task activities the teacher formatively assesses pupils by observing how they participate in a range of processes, discussing and checking their work, and providing meaningful feedback to help them to improve their learning.

When assessing Self Management and Working with Others, the teacher uses progression maps (Appendices B and C) that are based on the CCEA TSPC subject Progression Framework for Technology and Design. This helps the teacher to plan and focus on assessing particular aspects of these capabilities in different activities. This allows the teacher to identify pupils' strengths and areas for improvement and to support them to explore ways to make further progress.

Pupils using e-portfolios for assessing their progress in learning

The Head of Department (HOD) realised that finding ways to help pupils make progress in developing these Personal Capabilities was often more challenging than being able to identify gaps in these areas. Consequently, the teachers made a series of suggestions about how pupils could be supported to make progress. These are included in the progression maps for Self Management and Working with Others (Appendices B and C).

Self-Assessment

As part of the self-assessment process, pupils are encouraged to think about and reflect on feedback from the teacher and their peers. This helps pupils to make judgements about the quality of their own work and to assess their progress in learning. As part of this process, pupils use their learning journals to monitor and record their progress against success criteria and personal targets. Pupils also use key questions to focus on improving their work. These include:

- What progress have I made?
- What skills/capabilities have I developed?
- What knowledge and understanding have I gained?
- How did I demonstrate my learning?
- What could I have done differently?
- How can I improve my learning?
- What are my next steps?

After pupils take part in self-assessment, the teacher meets with individuals to discuss their performance and progress and to provide direction on how they might improve their learning.

Moving Forward

The STEM project has a significant focus on e-learning and enabling pupils to acquire and develop Using ICT skills. The HOD therefore is currently working with colleagues in other departments and the Key Stage 3 co-ordinator for Using ICT (UICT) to explore how appropriate parts of the project could be acknowledged through the ICT accreditation scheme and how they could contribute to the statutory assessment of UICT.

The Technology and Design department will continue to develop the STEM project, in particular its focus on e-learning and the use of e-portfolios for peer and self-assessment. Based on work to date, this approach has proved to be an effective way of assessing pupils in the TSPC in addition to their subject knowledge and understanding.

Appendix A

Examples of Tasks, Learning Intentions and Success

Task 1: Researching and selecting a cause or charity to support by holding a promotional event Criteria

Learning Intentions

Pupils will learn about:

- social injustice and inequalities;

- local and global social issues such as poverty, homelessness or health care;

- ways of raising awareness of such issues;

- individual responsibility;

- the role of non-governmental organisations; and

- decision-making processes.

Pupils will be able to:

- research information about a cause that they are interested in;

- research information about staging events to support their cause;

- make a decision about what cause they will support;

- provide appropriate reasons for making their decision;

- offer a well-reasoned argument to justify their decision;

- discuss their views; and

- participate in a group discussion.

Success Criteria

- Pupils provide research evidence to support their argument.

- Pupils provide a well-reasoned argument in support of their choice of issue or cause.

- Pupils justify their decisions for their selection of an issue or cause.

- Pupils discuss how they arrived at their decision about the issue or cause they support.

- Pupils contribute to group discussion.

Task 2: Planning and manufacturing a stage model

Learning Intentions

Pupils will learn about:

- the design process;

- communication and use of freehand sketching and formal drawing techniques; and

- manufacturing, selecting and using materials fit for purpose and the safe use of appropriate tools and processes.

Pupils will be able to:

- produce designs of a model stage;

- keep a digital record of their work;

- use SolidWorks as part of their design process;

- translate their designs into a product;

- select and work with appropriate tools with regard to health and safety; and

- build a model of a stage and associated parts.

Success Criteria

- Pupils design and build a model of a stage.

- Pupils provide evidence of planning their work.

- Pupils design and build other pieces of equipment such as drum kits or synthesisers.

- Pupils select and use appropriate tools and materials with regard to health and safety.

- Pupils keep a digital record of their work, using e-portfolios.

- Pupils participate and contribute to the work of the group.

- Pupils discuss and share their learning with others.

- Pupils give reasons for making decisions regarding their designs and stage models.

(For further details see Staging an Event at
www.nicurriculum.org.uk/STEM/)

Sullivan Upper School
Using e-Portfolios in Technology and Design for Peer and Self-Assessment

**Guidance on
Subject Assessment**
at Key Stage 3

Northern Ireland
Curriculum

Appendix B

Progression Map for Working with Others in Technology and Design

Learning With and From Others

Pupils begin to demonstrate the ability to:

- actively engage with others in group work;
- show willingness to interact to support others with their learning;
- actively listen and value the views of others and act on advice when appropriate;
- help others and share resources; and
- take turns when using tools and machinery in the workshop.

- help others to learn by sharing ideas and opinions;
- respond to each other in constructive respectful ways;
- learn from their own mistakes by discussing the relative advantages and disadvantages of using different techniques and equipment;
- give and accept criticism and suggestions; and
- be helpful and sometimes recognise the need to let others go first.

- demonstrate and share their expertise with others;
- recognise when others are having difficulties and be forthcoming in offering help;
- give and receive constructive feedback within a group, based on their own knowledge and experiences;
- show understanding of the feelings and abilities of other group members; and
- be willing to compromise to achieve group goals.

Ways to support pupils to make progress

Give pupils opportunities to make greater contributions to group discussion and group work.
Encourage pupils to think about what they might say and how they will respond to others.
Support pupils to contribute to completing a piece of group work.
Encourage pupils to listen more to others and sometimes act on helpful advice.
Ask pupils to think about those in the group who may need help or resources and encourage them to offer support.

Support pupils to realise when others may need help and offer useful ideas that will help others to move forward in their learning.
Enable pupils to think about how they can respond to others in a positive way that is helpful.
Help pupils to realise that learning from mistakes is an important part of learning.
Ask pupils to make a note of instances when they have made mistakes and what they learned from these.
Support pupils to be reflective and think about how others' advice can be helpful.
Encourage pupils to make a point of sometimes letting others go first.

Enable pupils to feel confident to share their expertise with others.
Ask pupils to sometimes share their expertise with others and think about how they felt and how it benefited others.
Support pupils to seek opportunities to offer and receive constructive feedback.
Get pupils to actively listen to what others are saying and ask them to think about how others in the group might feel.
Support pupils to think about the abilities of others in the group and understand that within a group people will have a range of ability.
Ask pupils to reflect on the need to compromise on occasions.
Present pupils with 'what if' scenarios to help them to understand the need for compromise on occasions.

Roles and Responsibility

Pupils begin to demonstrate the ability to:

- show that they can work in different roles and take responsibility in group tasks;
- accept changing roles within a group; and
- recognise where their personal strengths and weaknesses are in terms of the various group roles.

- show initiative in organising work within a group;
- contribute constructively towards group goals; and
- undertake a range of roles within group work and carry them out efficiently and with growing confidence and self-reliance.

- identify and agree group goals;
- organise roles and responsibilities;
- review progress and evaluate outcomes;
- make an active contribution when working as part of a group; and
- adapt their roles to meet the needs of the group.

Ways to support pupils to make progress

Provide pupils with opportunities to take on different roles within a group.

Ask pupils to accept responsibility for a particular piece of work or task.

Ask pupils to reflect on their personal strengths and weaknesses when undertaking different roles and discuss their reasons for thinking this.

Encourage pupils to take the initiative and make decisions about organising work within the group.

Ask pupils to actively seek opportunities to show initiative.

Enable pupils to make a significant contribution to the work of the group.

Encourage pupils to actively seek opportunities to take on different roles.

Encourage pupils to think about how they carry out different roles and evaluate their own efficiency and self-reliance.

Provide opportunities for pupils to participate in group discussions about ways of working and agreeing goals.

Ensure pupils have a chance to organise work and to negotiate roles and responsibilities with group members.

Support pupils to make an effective contribution to the work of the group.

Encourage pupils to think about how they could take on different roles to meet the needs of the team.

Ask pupils to seek opportunities to take on different roles within the group to complete work on time.

Influencing and Negotiating

Pupils begin to demonstrate the ability to:

- show respect by listening to differences in opinion;
- listen to all opinions before sharing their own ideas;
- take account of other views before reaching a conclusion; and
- be willing to change their views if they are presented with a reasoned argument.

- express their opinion using appropriate language;
- explore differences of opinion by asking questions;
- seek ways to resolve differences; and
- be aware of the range of attitudes, values and opinions that characterise groups (such as bias, favouritism and partiality) and take account of these before offering an opinion to others.

- use explanation and reasoning to reach an acceptable outcome;
- challenge values, attitudes and opinions by questioning assumptions;
- offer meaningful feedback to others in a way that does not undermine their contributions;
- empathise with alternative viewpoints; and
- take collective decisions based on a shared understanding of how work is to proceed.

Ways to support pupils to make progress

Support pupils to learn to be quiet when others are talking and to actively listen to others.
Encourage pupils to listen to different views, before expressing their own views or forming conclusions.
Ask pupils to carefully consider reasoned arguments, weigh up the pros and cons and, where appropriate, revise their own position.

Provide pupils with opportunities to effectively communicate their ideas/opinions to others using appropriate language.
Familiarise pupils with the idea of asking effective questions as a way of exploring different ideas/opinions.
Support pupils to develop strategies to help resolve differences of opinion and to reach consensus.
Encourage pupils to think about the reasons others may hold different views.
Reflect on how the view of others can impact on group relationships and outcomes in relation to work.

Provide pupils with a range of opportunities to make and present reasoned arguments to influence a favourable outcome.
Familiarise pupils with the idea of questioning values and assumptions.
Model meaningful feedback for pupils.
Provide pupils with opportunities to develop ways to give feedback to others.
Ask pupils to consider others' views/opinions from the others' perspective.
Provide opportunities for pupils to participate in collective decision-making processes.

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Review and Improve

Pupils begin to demonstrate the ability to:

- think before acting;
- review and discuss their thinking and learning;
- maintain a personal log to monitor and evaluate work and learning;
- reflect on previous experience when deciding how to proceed; and
- use exemplar material to aid evaluation of completed work.

- explain their approaches to thinking and learning;
- compare different approaches with a view to improvement;
- respond positively to feedback;
- apply the lessons from previous assessments and evaluations; and
- use exemplar material to aid evaluation of own work as it progresses.

- avoid making quick decisions and snap judgements;
- readily and independently evaluate approaches to thinking and learning;
- make connections between different learning approaches and apply these in new contexts;
- seek out and act on advice;
- systematically monitor and evaluate their work and learning on an ongoing basis; and
- attempt to further develop skills and techniques and produce a quality outcome.

Ways to support pupils to make progress

Ask pupils to think about a time when they acted impulsively and the consequences.
Ask pupils to think about how they could have avoided this.
Provide a range of opportunities for pupils to reflect and discuss their thinking and learning.
Enable and support pupils to keep an up-to-date personal learning log.
Provide examples of the sort of information they should include in their learning log.
Help pupils to learn how to evaluate their work.

Ask pupils to explain and discuss their thinking and approach when undertaking some activities.
Ask pupils to consider one or two activities and compare their approaches with those of others.
Get pupils to reflect on different approaches to an activity and identify how doing things differently could lead to improvements.
Encourage pupils to use their personal learning logs to record what they have learned from working on some activities/tasks.
Provide pupils with exemplar material and support them to make comparisons with their own work and say what improvements they could make to their own work.

Involve pupils in decision-making activities that require them to assess all of their options and to only make decisions after a period of reflection.
Encourage pupils to create their own opportunities for reflection.
Ask pupils to consider how their learning in one task is related to learning in other contexts.
Ask pupils to record situations where they have applied their learning in new contexts.
Encourage pupils to actively seek support when appropriate.
Support pupils to keep an up-to-date record of their progress in the e-portfolio.
Enable pupils to take responsibility for monitoring and evaluating their own progress using the e-portfolio.
Ask pupils to set and review targets to develop certain skills/capabilities in their personal learning logs.

Time Management

Pupils begin to demonstrate the ability to:

- complete a task on time;
- keep work up-to-date; and
- manage practical work in class time by avoiding queues in the workshop and finding other work to complete.

- plan and organise a sequence of activities to meet deadlines;
- recognise the likely time commitments associated with specific design and practical tasks and estimate how best to complete work as a result;
- allow enough time to meet deadlines, taking account of other work commitments; and
- balance the time needed for practical and design work.

- plan and organise different tasks, prioritising and re-allocating resources in order to meet competing deadlines;
- organise time effectively;
- prioritise work, taking a realistic account of the time needed for practical work and of competing demands on time and attention; and
- allow time for reflection.

Ways to support pupils to make progress

Monitor pupils' work to ensure that they complete work to meet deadlines and that they keep work up-to-date.
Support pupils to work on more than one task at a time.

Support pupils to plan and organise their work to meet deadlines by making use of their e-portfolios to set achievable targets for completing work.
Ask pupils to justify their reasons for their choice of approach.
Support pupils to estimate the time required to complete work, taking into account their choice of approach and other work commitments.

Provide pupils with opportunities to review and reflect on their capability to manage their work.
Support pupils to work independently to plan, manage and prioritise work to meet deadlines.
Ask pupils to justify why they have prioritised work in a certain way.

Goals and Targets

Pupils begin to demonstrate the ability to:

- identify strengths and weaknesses;
- agree realistic and achievable personal targets and goals for learning;
- reflect on previous feedback from their teacher and peers;
- identify areas for improvement;
- seek out specific advice on strengths and weaknesses from teachers; and
- identify ways to make improvements in their learning.

- identify and prioritise individual learning needs;
- follow steps for improvement;
- monitor progress against personal targets and goals an ongoing basis; and
- seek out specific feedback on areas for improvement from teachers.

- show independence in setting and following through actions for improvement;
- review progress and make appropriate changes;
- reflect on their learning and focus on one area of improvement in each task; and
- set increasingly challenging personal targets and goals.

Ways to support pupils to make progress

Provide pupils with opportunities to reflect on teacher and pupil feedback about their work/learning.

Provide pupils with opportunities to identify, discuss and reflect on their strengths, weaknesses and focus for improvement and to identify ways to improve their learning.

Ensure pupils use their personal learning logs to agree realistic and achievable personal targets and goals for learning.

Help pupils to understand the benefits of seeking advice and taking on board advice from others.

Enable pupils to use their e-portfolios/personal learning logs to identify and prioritise their learning needs.

Support pupils to use their e-portfolios/personal learning logs to identify and record gaps in their learning.

Support pupils to explore ways and to follow steps to improve their learning.

Encourage pupils to actively seek specific feedback from teachers.

Provide pupils with helpful advice, when asked for, taking into account the need to encourage pupils to become more independent learners.

Provide pupils with time to reflect on the level of independence they have demonstrated in their learning.

Have a discussion with pupils about their learning experience and independent learning and invite pupils to provide examples that show how they have demonstrated a level of independent learning.

Enable pupils to set targets for improvement and to take steps to make improvements.

Review and discuss pupils' performance and progress against their targets and goals.

Ask pupils to think about their progress in relation to personal targets.