Bottling Inspiration

Shoot Smart Swindon Final Project Report

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All photos by the authors unless otherwise indicated.

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Executive Summary

Purpose of the project

The Shoot Smart Swindon – Bottling Inspiration project was designed to test whether young people in a variety of educational settings and with different learning and physical abilities could be provided with iPad tablet computers, expert instruction and guidance, and a supportive environment, and together create high-quality short films that tell a story. Further, the project collected data throughout the activities both to evaluate the capabilities and potential of iPads for filmmaking, and also to be able to make recommendations on how to scale up activities like these to many more young people in the future.

Project activities, setting and population served

The project involved a team of filmmakers and technology experts working with teachers in three Swindon schools on a project with students who would create a film (from idea, to story, to script, to filming, to final production) using iPads in just a few weekly sessions. The students served included mainstream students at a comprehensive school, to students with special learning and behavioural needs, to physically impaired students studying the arts. This range of students allowed us to see how various students would work with the technology, and how they would work with each other.

Purpose of the evaluation

The evaluation reported here was to assess both the functions of the technology used, but also, at a broader level, to assess the support for serious filmmaking in a range of schools. The data collected as part of this evaluation forms the basis for the recommendations at the end of the report.

Overview of findings

The findings of this report focus on the filmmaking process, and the strengths and limitations of the iPad platform to support making high-quality bespoke films. Drawing on evidence from all three participating schools, the report walks through the process the students used to come up with an idea, plan their film, shoot the film, and edit the film. From this, conclusions are drawn both about the technologies used, but also about the ways students engaged with the technology, with each other, and with the filmmakers. One of the clear outcomes is that iPads, when used effectively, are extraordinarily good at encouraging collaborative work. However, it is also clear that classroom teachers need additional support if they hope to make best use of iPads or similar technologies to create short films.

Overview of recommendations

The recommendations in this report fall into three main categories: support for filmmaking, the functionality of iPads and their applications, and broader considerations about filmmaking education.

In the first category, support for filmmaking, we recommend more support for teachers including clear and engaging materials to support them in their work. They need better information and guidance on the technical aspects of making films with iPads, on filmmaking techniques more generally, and on storytelling in film. These guides should be supplemented with detailed lesson plans and activities that they can use in their lessons. In addition, teachers need more support in the form of examples of short films and filmmaking techniques, and also in the form of support forums which will allow students and their teachers to ask questions of experienced filmmakers.

In terms of iPad functionality, we recommend software apps that allow more control over the built-in cameras, over adding information to shots, and provide more control and functionality in the editing apps. Some other aspects, such as sound and grip technique, need to be addressed as well going forward.

Finally, in terms of broader considerations about filmmaking education, we call for a conversation among key stakeholders including filmmakers, industry experts, teachers, students, and educational institutions about the goals of iPad-based filmmaking. The possible goals range from encouraging formal education into the processes of professional filmmakers, to providing playful ways for young people to explore their creativity, to being a platform for teaching transferrable skills such as team-based work, technology use, and English skills. These goals are not incompatible with each other, but additional clarity is needed in how to support each most effectively.
Project Description

 Shoot Smart Swindon – Bottling Inspiration was designed to test the proposition that young people could be provided with iPad tablet computers, expert instruction and guidance, and a supportive environment to make high-quality bespoke films. The idea has been to test the iPad as an end-to-end platform especially for entry-level collaborative filmmaking by youth in a variety of settings.

One of the challenges of encouraging youth to create their own films is that traditionally, filmmaking requires considerable capital investment in a range of equipment including cameras, lighting equipment, editing suites, projection equipment, and so on. This inevitably results in a divide between young people who have access to such equipment through their school, or an organization, or their parents and those who do not have such access. While the widespread adoption of smartphones by young people has lowered some of these barriers (e.g. the ability to quickly capture a video and post it to YouTube or Facebook, for instance), the ability to actually create story-driven films still requires facilities to script, edit, and produce films that are not as widely used or available.

During this project, for instance, teachers noted that on previous projects when students were asked to produce things like music videos, those students whose parents had expensive computers and specialized software like Adobe Premiere Pro or Apple Final Cut Pro at home were placed at a significant advantage to students who were limited to school computers during school hours with more limited (and all too often out-of-date versions of) software like Windows Movie Maker or Apple iMovie. The school computers themselves are also highly variable, ranging from powerful recent computers to old and slow machines.

Bottling Inspiration raises a question: if inexpensive iPads loaded with software that can support not only shooting video, but also idea generation, scripting, editing, and production tools can be provided in a school environment, can this level the playing field so that more students can develop their creative abilities to make or contribute to the production of films?

In order to test this idea in a variety of settings, three schools were recruited to participate in the project. The three schools chosen, all located in the Swindon area, were selected because their students represent a range of challenges with regard to working with iPads as a movie-making platform.

Lydiard Park Academy ([http://www.lydiardparkacademy.org.uk/](http://www.lydiardparkacademy.org.uk/)) is a mixed sex comprehensive secondary school (ages 11-16) with approximately 1000 students. Lydiard Park currently teaches GCSE Media, but is adding a sixth-form in 2014 that will include A-level media. As such, they are currently deciding how best to support film production at the sixth-form level in terms of equipment and software; as a result of involvement in this research, the school has recently purchased a suite of iPad minis. The project at Lydiard Park with 5 students was held during an optional session for students, and was supported by the GCSE Media teacher Cathy Urquhart.

Crowdys Hill School ([http://www.crowdyshill.swindon.sch.uk/](http://www.crowdyshill.swindon.sch.uk/)) is a secondary school for students with special needs that enrols approximately 130 students. The team worked with 12 Crowdys students during school, and were supported by teacher Neil Mercer.

The Commonweal School ([http://www.commonweal.co.uk/](http://www.commonweal.co.uk/)) is a performing arts academy with approximately 1000 students age 11-16. The 20 students who were involved in this project at Commonweal were mostly from the Commonweal School Physical Impairment Unit, with some students from the school mainstream. They have a wide variety of physical impairments, which allowed us to test the limits of the viability of tablet filmmaking for young people with disabilities. The project team worked with students during school, and were supported by ICT teacher Sam Dare and Lead Teaching Assistant for the PI Unit Danuta Janicka.
The project was led by a team of experienced film-makers and technology experts who have been working with young people on film projects for over a decade. Keith Phillips of Ideal Films (http://www.idealfilms.com) has been working with young people in a wide variety of settings, teaching them filmmaking and story-telling techniques so that their voices can be heard (see http://vimeo.com/24568233 for more information). Keith was the primary person to interact with students during this project.

In this he was supported by James Carroll of Evil Twin Artworks (http://eviltwinartworks.com/), which is a technology firm which develops multi-platform games, and brought expertise working with platforms including the iPad, as well as expertise in story creation including game, film, and cartoon story design. With Keith, James also regularly worked directly with the young filmmakers.

The main goals of the project were:

1. Conduct action research project with students from three schools from Y7 – Y10 with a variety of personal and educational needs, and also with their teachers and support staff.
2. Research their existing filmmaking activity, with particular reference to tablet computers, and the needs of their curriculum in terms of filmmaking.
3. Ensure they all have a baseline experience of filmmaking using our standard techniques and equipment.
4. Work with students and school staff to explore the current market for apps both specifically for film development and filmmaking, and those which might be turned to that use.
5. Work with students and staff to adapt our standard processes to ones that might lend themselves to tablet filmmaking.
6. Work with each of the filmmaking groups to make a short film.
7. Work through the processes developed in 5, evaluating and adapting as we go along. Also record results of research and recommendations for a possible integrated filmmaking app.
8. Mentor and support the students towards making a great short film, pushing the limits of what can be achieved with a tablet, thus demonstrating what can be achieved, and providing an exemplar for future students.

There were some deviations from this overall plan during the project outlined below, and of course adjustments to specific approaches were made during the course of the project, which was always part of the plan, to learn together with the students as the project progressed.

The main deviations were had to do with points 3, 4 and 5, for a variety of reasons:

3. Baseline experience: Most of the Commonweal students had already had thorough experience of standard filmmaking techniques on their Into Film project Surprise Party, and we had planned to give Lydiard and Crowdys a brief taste of the same kind of thing. However, on discussion with the teachers, we decided not to do this. We decided that it would have been too challenging for the Crowdys students. The Lydiard students only had a very limited time in their after-school club, so we decided to concentrate just on the iPad films. We came to the conclusion that this wouldn’t harm the research, but instead give us some different perspectives on iPad filmmaking - between those who know what the “real thing” is like and those who are coming to filmmaking with fresh eyes.

4. App research: This would have been too challenging for the Crowdys students. With the other two schools, there wasn't sufficient time to do this before filmmaking began, so we found a selection of likely apps ourselves and presented different student groups with different apps to try out during the actual filmmaking.

5. Adapting standard processes: Again this would have been too challenging for the Crowdys students. The Lydiard students didn’t have the baseline experience to be able to do this with us as planned. However, we did discuss the various techniques with the students and they were able to make a significant and valuable contribution to this work, particularly on the use of certain apps to replace traditional approaches to filmmaking. Even though the Commonweal students had the necessary baseline experience, we again opted to do this work as part of the main filmmaking process.

We don’t feel that any of these deviations harmed the overall research or our ability to draw conclusions from the data.
Evaluation Methodology

The approach to evaluating this project has been primarily qualitative and very collaborative amongst the team members. First, the team established a comprehensive variety of research subjects: from students with a thorough experience of traditional filmmaking using professional equipment to those who had never made a film before; from students with complex educational needs to the academically gifted; from the physically able to those with severe physical impairments; from Y7 to Y10. They then investigated the variety of responses these students had to filmmaking with tablet computers. We investigated how effective tablet computers are for filmmaking, what additional tools would be necessary to bring them closer to the standard of our usual production methods and what the limitations are without these extra tools. In particular, we looked at the fact that tablets have a fixed lens, are not well adapted for use with tripod and are not designed to work with an external microphone.

In order to investigate techniques that can be used to mitigate these limitations, and indeed in what ways the nature of tablet filmmaking can be exploited creatively, we discussed these issues between ourselves and with the teachers and decided that additional tools are beyond the budgets of schools and the technical expertise of teachers. As a result, we decided to focus on pushing the boundaries of what kind of film can be made with an iPad on its own. Having made this decision, we discussed with the students from Commonweal and Lydiard about what approach to take. We talked about approaches that exploit the hand-held nature of the iPad, and techniques of filmmaking that don’t use live-recorded sound. Commonweal decided to include the hand-held nature of the iPad in their film. Lydiard decided to make a traditional film and make the best of hand-holding. Both schools decided to see what they could achieve with traditional filmmaking as far as sync-sound is concerned.

Specific data gathering methods included:

1. Semi-structured interviews with members of each of the groups. In addition, we did interviews with other key personnel such as teachers and other organisation staff to understand the broader context of their use of technology. These interviews followed established procedures of person-centred interviewing.
2. Observations of student engagement with the technology. The team kept notes, video recordings, and comments about how the sessions with students progressed, their comments, their successes and frustrations, and the outcomes of the project.
3. A focus group with selected students and teachers allowed the team to discuss some of the key questions of the project at the end of the project, on a day when all three participating schools came together to see each other’s films. The focus group enabled in-depth discussion of topics over the course of 45 minutes.

One limitation of this approach is a lack of quantitative data, but due to the short time-scale and exploratory nature of the project, no quantitative results would be large enough to be statistically meaningful or even indicative of larger patterns. The student films, for instance, were not posted online until the very end of the project, and thus did not have any data such as number of views yet. In the future, however, data could include such metrics as number of views of the student films and links to the films from Twitter. In addition, if there were larger numbers of participants, a survey might be useful to compare the views of various stakeholders.

The evaluation for this project and this report were led by Professor Eric T. Meyer of the University of Oxford. He is an Associate Professor at the Oxford Internet Institute, where he studies how different domains from the arts to the sciences respond to technological innovations in their practices. His work for this project was done under the auspices of Oxford University Consulting. Data were gathered and reported by all three main members of the project, all of whom also contributed as authors to this report.
Findings

What follows are observations from a typical set of sessions with the iPad. These are a composite of experiences with all three groups. In some cases, all the groups used similar technologies and approaches, in other areas they varied. For areas in which they varied, the lessons that can be drawn from the differences are noted in the narrative.

Pre-production

In the pre-production phase, each group needed to decide on a basic idea, a story to tell, and outline the parts of the story. We worked as a group using the iPad plugged into the room’s built-in projector, with one of the students nominated to input the data based on the ongoing conversation. One challenge already arose here with one group: connecting the iPad to the projector was less easy than it ideally might have been. Students struggled to find the right connections and adapters, which suggests greater ability to use the iPad’s ability to remotely connect to other devices such as an Apple TV would be a desirable addition for classrooms using iPads collaboratively. This was highlighted by the experience of one of the other schools, where Apple TV was available and the process of syncing the iPads to the projector was quick and easy. In that classroom, we had more iPads available (one device per two students), but the ability to easily connect them to the projector made this go very smoothly.

The app we used most successfully for pre-production planning was Popplet (http://popplet.com/), which makes node-based spider web diagrams. With this displayed on the screen, the young people would take the highlights of their ideas and then move, edit, re-arrange, and re-order them quickly and simply. In this way, they could take the individual concepts and move them into position to make the most coherent story. The complete scripting was done in Popplet, particularly with one of the small groups where this allowed us to skip the storyboard phase and get to production more quickly.

The students took to Popplet very quickly, finding the simple mechanisms required to make boxes, to attach different colour boxes to the text to denote props, locations, and other considerations that the film would need, and to see what was happening as a group as an effective way to work together. For one of the groups with students with attention difficulties the group leader took the notes, but with other groups the students themselves took the lead.

One of the groups tried using an alternative piece of software, Storyboard Quick (http://www.powerproduction.com). The group found this application less simple to use. After this group had worked out their basic premise, they used this software to create a storyboard for the film. However, they ran into a number of problems, including finding it difficult to add and swap between storyboard frames, finding it unclear how to add frames in between existing frames, and that the few default characters were very basic and difficult to put across complex actions. In addition, the dialogue and action text boxes were a single box, making it more difficult to see where dialogue and action should come in. Even though this app was technically more sophisticated than Popplet, in the end Popplet proved easier to use, which is a particular consideration in projects of this type where the students have relatively limited time to undertake each phase of the filmmaking process.

As part of the pre-production phase, the group then took the iPad to different potential locations, and used it to take scouting pictures in preparation for the shoot. The combination of script and location photos on a single portable device allowed the students to refer to anything needed, including props, within seconds. The students were also able to test angles and shots at this early stage, to cement the ideas for the project.
Casting decisions were also made during pre-production, with the group deciding which students should be in which roles. At the schools with larger numbers of students participating, students explored their characters and did an audition that was filmed on the iPad. The students together would review these auditions and vote for their favourites to play parts in the final production. At schools with smaller numbers of participants, the casting was done in a similarly collaborative fashion, but with a more consensus-based process rather than voting.

After working in the field, the group returned to the classroom and worked with another app called Notability (http://www.gingerlabs.com/). This app allows students to import the reference location images they have just taken and draw hand-written notes on top of the images. The students experimented with using a Stylus, but in the end found it easier just to use their fingers.

The teachers commented that this paperless pre-production process was useful for simplifying the filmmaking process. In addition to the obvious savings in paper and printing costs and complexity, having digital copies is a boon for students who tend to lose papers. In addition, they felt that boys were more likely to want to work directly with the technology and thus would prefer this mode to using paper-based techniques, and the girls likewise did not seem in any way put off by the technology.

**Production**

Popplet continued to be used during the production phase of the filming for some groups. This again proved relatively straightforward, and enabled such simple techniques as tapping each box as a shot was completed and changing it to a new colour; in this case the group decided that green would indicate a completed shot and amber would be used to remind them to film the shot from another angle. This allowed the filmmakers to see at a glance how many shots remained. One limitation of Popplet, however, emerged during the filming: for more complex scenes (such as one where a single actor was playing two roles, one a doppelganger of herself), deciding how to frame the shot to give the impression that one actor was actually in the scene twice as two different people would have been easier with a more fully-fledged storyboarding application.

The professional filmmaker leading these groups (Phillips) used the beginning of the production phase to demonstrate some good habits to emulate and some bad techniques to avoid. The iPads proved very useful for this, since the group could film two shots under his direction, and these were then taken directly into iMovie and cut together on the spot. The students could then immediately see how the shots worked or not. This type of immediate feedback helps to reinforce the lessons for the students.

Some of the limitations of the affordances built into the iPad, however, also became apparent during filming. First, the prominent placement of the “stop recording” button encouraged students to cut the shot too quickly, and not allow enough extra space at the end of a shot to enable editing and cutting in iMovie later. This initial tendency to stop too quickly may also have been a function of student’s familiarity with recording short clips on their smart phones, which are largely stand-alone pieces not meant to be edited together. The students also learned that there also needed to be additional space at the beginning of a shot, again to allow for easy editing. The iPad recording did not start instantaneously, so some early shots were marred by missing dialogue at the beginning of a shot. While in this project the students were able to learn these limitations, it would be a simple matter of design to build in functionality that would encourage more space at the beginnings and endings of recordings.

Another limitation had to do with the relatively limited memory capacity of the iPad. Since video footage takes up considerable storage space, the filmmakers had to decide which shots were most important and then keep them, while putting the worst shots in the trash. This is a different mindset than traditional filmmaking, in which the good shots are typically gleaned from the rest during the editing process. One step we took to alleviate this issue...
somewhat was importing the shots directly into iMovie to edit on set. This approach, however, requires discipline by those filming to keep the important material and to only delete the unnecessary shots.

The quick feedback enabled by the iPads noted earlier continued during the production phase. After filming a series of shots for the first scene of the film, the group could return to the classroom and edit the shots in iMovie. In five minutes, it was possible to have a rough cut of the scene which made it clear whether any pickup recordings were needed to fill in gaps. Also, when a shot just didn’t work, the group could reshoot the part very quickly. This ability to identify and resolve mistakes quickly proved very valuable in developing filmmaking skills. While there was structure built into the process, it also allowed for considerable experimentation and learning by the students. As one student noted, “you can just get stuck in and try things out” using this rapid shoot-and-edit technique. This also proved effective with the students in the group with short attention spans and an ability to be easily distracted: the iPad allowed takes to be quickly set up, shot, and reviewed, accommodating the rapid filming and constant encouragement that was best suited to working with these students.

Figure 4. Rough Cuts in 5 Minutes

The ability for the group to quickly see whether a shot was successful on a large screen (either the relatively large iPad screen as opposed to the small viewfinder window on a professional camera, or hooked up to a large projection screen) also alleviates the anxiety students often feel that they have missed something, or not covered everything they need to in a scene. The students also developed the confidence to use extended tracking shots by walking with the iPad. The larger screen and more comfortable holding position was also of benefit here in facilitating much greater stability in these shots. This is a marked difference to filming with professional equipment where tracking shots require a lot of extra equipment, setting up and careful execution. Through experimentation, the students found they could press on an actor’s face, for instance, and lock the auto exposure and auto focus on them for the shot. One consideration is that there is less control of exposure and focus, however, and in the default app the two are linked. We tested two other video apps, FiLMiC Pro and MoviePro. These both had better video recording abilities than the built in camera app, including separate semi-manual controls for focus, exposure and white balance. Commonweal students used FiLMiC Pro to film some shots in challenging lighting conditions and used the independent semi-manual focus and semi-manual exposure to great effect, making sure the shots were properly exposed and in focus on the subject. Zooming in on the scene also became an editing issue rather than a shooting issue: the iPad doesn’t have optical zoom, but iMovie does allow “pinching” to increase the size of a shot during editing.

One of the productions relied on multiple angles, to give a “found footage” feel, and used multiple iPads. For this production, a part of the plot involved the idea that the footage was collected from the public at an event, so even having another iPad in shot would not be a problem in terms of continuity. This production also relied on effects, but rather than rely on the limitations of the free FX software available, it was decided to do in-camera effects such as panning the camera during an “explosion” and throwing some dirt past the field of view. This of course required timing and planning.
As the filming progressed, looking through the iPad at the actors rehearsing the scene helped students to visualize what the scene would look like more easily, and helped them select specific shots and angles. In addition, the relatively large screen of the iPad allowed everyone in the group to see the screen (although in bright outdoor light, even the operator sometimes struggled to view the screen). It was noted in one of the larger groups that this allowed even those students who may have been hanging back from directly using the filming equipment to learn about the process through observation in a way that is not possible with most traditional film equipment. It also keeps all the students involved in the entire process, keeping up with what is being filmed and able to comment during the process. For example, during the aforementioned “explosion”, students were able to get an instant replay and review the shot as a group, take a consensus of what adjustments to make and then reshoot. One of the teachers noted that this process was exceptionally useful, from a learning point of view: “You can talk all you want about what needs to be done beforehand, but actually doing it in practice this way really helps the students understand and learn together.”

The form factor of the iPads came into play particularly with some of the students with physical limitations, such as being in a wheelchair. In some ways, the iPad proved easier for these students to deal with than a large camera on a tripod. Those with less muscle strength in particular can often get the iPad on their lap or balanced on a part of their wheelchair. It should be noted however, that particularly for one of the students with severe motor control issues, the student commented that they preferred their normal computer over the iPad used in this project due to a lack of assistive controls and interface devices.

The shared experience continued when the shots had all been filmed, and the group returned to the classroom to edit together on the large screen. Seeing the editing on the big screen helped students notice the minutiae, such as an actor having a prop in hand in one shot but then missing the prop in the next. Students commented on how much projection really enhanced the editing experience.
The sense of achievement the students felt was noticeable: one group of students shared high fives over the work they had done after a day’s filming and editing; another group displayed a noticeable level of enjoyment and sense of achievement when their classmates reacted positively to seeing themselves and their friends in the early cuts of the film on the large projector. Unlike traditional filmmaking, where many elements of the process are invisible to many of the participants, this process exposed the entire process to the whole team, and allowed them to see a nearly final end product almost immediately. This also has advantages from the point of view of the teacher or group leader, who can rest more easily knowing that the students’ project is on track.

Working in this way also required the expert filmmakers on the team to adjust their expectations. Unlike traditional timetables that involved editing days later, having the filming and editing run together was surprisingly satisfying for them as well. This is an adjustment that group leaders planning to lead projects such as this need to make in their own thinking, however, in order to take best advantage of the possibilities of iPad filmmaking. Since the iPad version of iMovie requires no rendering, which can be a time-intensive process on PCs and Macs, edited footage can be seen immediately without waiting for processing to occur.

iMovie presents the young filmmakers with a simple and accessible interface. While experienced filmmakers will notice the limitations of the platform (see below), the young people who hadn’t used similar tools before didn’t really appear to miss these functions and were able to very quickly put together and edit a film. Rather than having a few people huddled around an editing suite, all members of the team can literally take a back seat and help from the other side of the classroom, allowing the young people creative control over the decisions affecting their film. Having the footage available on the big screen seemed to increase confidence in trying shots, and allowed students to come to the realization that making mistakes is an important part of the filmmaking process.

It should be noted that iMovie as an editing platform does have limitations. It is not really intended as a serious filmmaking tool, and tries to push the user in directions you may not want to go (e.g. with features designed for holiday videos, or questions such as “Are you making a trailer?”). By default it puts a dissolve between shots, which feels amateurish and requires the user to change to a straight cut on every shot to achieve a proper dramatic editing style. Also, colour correction is not available in iMovie, which may become an issue for students making films in changeable light conditions. Titles were also difficult in iMovie, with no option for white text on a black background or for scrolling credits. The professional filmmaker tried creating titles in a variety of external software and importing them to iMovie, but iMovie’s fixed settings made them unsatisfactory. In the end, he had to export the finished film into Final Cut Pro and do the credits and final sound mix there.

As mentioned above, we also tested some other applications such as FiLMiC Pro and Movie Pro for filming (see Appendix), but in the end mostly relied on the standard iPad app because of its immediacy and ease of use.

Another limitation of the platform has to do with sound: using the built-in microphone has lots of limitations compared to using more professional sound recording equipment. In poor acoustic environments particularly it can be difficult for the iPad mic to pick up the intended dialogue or sounds rather than excessive background noise. This requires additional planning in advance, either in terms of when and where to film, or whether to later replace the audio during editing. We used Garageband to quickly add default musical loops to enhance the mood and theme of the film; at a basic level, the editors can choose parameters such as “dark” or “piano” and then narrow down to a desired musical loop.

Figure 8. Students Sharing their Sense of Achievement
List of Films

Each of the three groups successfully produced a finished short film using the process described above. These short films are as follows:


Figure 9. Commonweal Capers

Crowdys Hill School produced the film Zombie School (http://vimeo.com/idealfilms/zombieschool), a horror-genre film about a school which has become affected by a zombie-inducing science experiment.

Figure 10. Zombie School

Lydiard Park Academy produced the film The Other Girl (http://vimeo.com/idealfilms/theothergirl), which is a suspenseful film causing the audience to question whether the events are real or simply happening in the mind of the protagonist.

Figure 11. The Other Girl
Interpretation and Reflection

We consider this project to have been very successful both in terms of enabling all three student groups to create short films using iPads, but also in terms of enabling the project to gain a much better understanding of the possibilities and limitations of working with iPads as a filmmaking platform. Both the students and their teachers also expressed strong support for the project, as the following quotes indicate:

Teacher: “I’m really impressed with the quality and seeing the process through. The students were really learning on the job, and that was so evident since we had quite concentrated sessions. Often with filmmaking you do all the filming and then all the editing comes along so much later and it seems to take forever. But doing it in this concentrated way means that people are learning, and I think that learning will stick. It is hands-on learning: rather than being told ‘this is how you edit’ they are actually getting in there and doing it and it becomes a matter of course. Really impressive.”

Student: “I find it quite good that we are using iPads instead of a professional camera, because it is different and you don’t get to do something like this very often. It is nice to do something different for a change.”

Student: “You had more freedom to choose what to do, and you could make your own ideas and be creative.”

It was quite clear throughout the project that while the current hardware and software of the iPad platform has obvious limitations as a serious filmmaking tool (highlighted both in the Findings above and the Recommendations below), on balance these were offset by the enthusiasm for trying something new and experimenting with the iPads.

At the beginning of the project, we asked whether inexpensive iPads loaded with software that can support not only shooting video, but also idea generation, scripting, editing, and production tools could be provided in a school environment, and whether this could level the playing field so that more students can develop their creative abilities to make or contribute to the production of films. On the first point, we think it is clear that the answer is yes, although there is plenty of room for improvement in the suite of applications available to support the full range of filmmaking activities. On the latter point, the jury is still out: while we are more convinced than ever that iPads and other technologies that encourage collaboration can help build creative teamwork, we don’t yet have the evidence to suggest that it can level the playing field either within schools for students with different access to resources, or between schools with different investments in technology. We do, however, think it is an experiment worth continuing to pursue. In our recommendations below, we set out what we think are some of the key changes in the educational and filmmaking ecosystem that would need to take place to start to level the playing field. Some of these relate to technology, but even more relate to support for teachers in becoming more skilled at being able to teach storytelling and narrative approaches to short filmmaking in their schools.

One of the things we assessed was the current state of technology and support for filmmaking in the schools. It was apparent that while some of the schools had relatively good technology available to students (although this was very uneven), there was less confidence from the teachers in their ability to support the students in making high quality short films. Many of the students would make video projects such as music videos as part of school projects, but these are simpler in terms of process and creative storytelling. For instance, the following quote was from one of the teachers thinking about trying to do a project like this on her own in the future:

Teacher: “I’m worried that I’m not going to be able to do all the things that Keith and James were able to do so competently. I do feel like I need some more tuition. I’m waiting for Keith to write the guidebook.”

Another teacher made a similar point, but more broadly about showing teachers the possibilities available to them with iPads and other similarly affordable technology:

Teacher: “A lot of schools are buying iPads for different reasons. A lot get them in and don’t really know what to do with them. They might use them for some educational activities or a few games, and they don’t really realize the creative potential an iPad has got. You can basically make a whole film within one relatively cheap piece of equipment. I would encourage schools to use the equipment that they’ve got as creatively as possible.”
While we have been focusing on iPads throughout this report, we should note that we tried using an Android tablet as well, but soon rejected it as a thorough platform. While the camera on the device was perfectly capable, the app ecosystem lacked any decent apps for film editing. We also note that there is a wide variety of devices available for the Android platform. This puts extra pressure on teachers who may not have the knowledge to choose a device with sufficient capability for filmmaking, and who may be under financial pressure to buy too cheaply. As such, we cannot recommend the Android platform at the current time based on our experience.

One of the overarching themes from the data was the extent to which the iPad encouraged teamwork and inclusivity in filmmaking. The following quotes, from a student and a teacher, illustrate this:

Student: “The most satisfying part was working as a team to get things done. It is a team effort, and the quality that comes out at the end is hard work, but if you work as a team it comes out good.”

Teacher: “I really liked to see them all in different roles outside the classroom environment, and how creative they can be and how much enthusiasm they have got. They were happy to use new technology, and new ideas, that is really interesting to see them in that different context.”

Figure 12. Teamwork and Creativity

While most filmmaking projects are based on teamwork and creativity, there really did appear to be something special happening on this dimension when using the iPads collaboratively and with shared projection. The potential for building teamwork and collaborative creative activity strikes us as a particularly strong reason to continue to pursue ways to extend and expand projects such as Shoot Smart.

In the following section, we make recommendations for how we think this might be done, based on our evidence and experience on this project. It is our hope that these recommendations will start a conversation with other project teams, within the filmmaking community, and within the education community, on how to leverage technologies such as iPads to encourage learning and the growth of creativity amongst young people.
Recommendations

Based on our experiences on this project, we have a number of general recommendations regarding supporting youth filmmaking, and some specific recommendations regarding the use of tablets for student filmmaking. These recommendations come from the data collected as part of this project.

Support

One of the great features of previous Into Film and First Light projects has been the involvement of experienced filmmakers. Shoot Smart is about enabling teachers to give young people those kinds of experiences on their own. However, there is still a significant gap between providing filmmaking hardware and software, and the ability to help young people learn the process of making an interesting film that tells a story. Amongst the things that teachers need to better provide these experiences to young people are:

- **Well-written, engaging, and clear guides** to:
  - the technical aspects of filmmaking using iPads
  - filmmaking techniques
  - storytelling in film

- **Detailed resources in the form of lesson plans and suggested activities**. These would also enable teachers to teach themselves more about filmmaking. While the iPad can enable all sorts of creativity, too much freedom can be stifling in its own way. By providing lessons and exercises with clear goals and limitations, teachers can help students focus on good storytelling rather than wanting to create blockbuster effects like they have seen at the cinema.

One worry that these guides must address is that too many media courses around filmmaking are centred on music videos or movie trailers, which are relatively easy in terms of structure and technique, rather than on the great dramas and creative documentaries that can be made in the shortest of films. There is a clear gap in the information available to teachers in that most of the books currently available on story structure and screenwriting concentrate on feature films and long TV dramas rather than on the potential of short films. Based on our discussions with teachers, there seems to be a clear need to provide them with **guidelines, tips and ideas for making proper story-based short films**. Part of this is also to provide teachers with **great examples of short films** that they can show to their students as a source of learning and inspiration. These short films should be entertaining and accessible to young people, they should demonstrate good storytelling, and have been made with the minimum of resources. They should include examples made by young people, festival winners, and professional short films that students might run across in their everyday lives such as John Lewis Christmas ads (see [http://www.bbc.co.uk/news/magazine-24901114](http://www.bbc.co.uk/news/magazine-24901114) for how these can initiate discussion and debate). These teaching resources should be **developed in consultation with experienced teachers** to maximize their usefulness and likelihood of adoption.

We also recommend a **forum** that would form the basis for a support network, modelled on the lines of the Stack Overflow Q&A site for software programmers, for students and teachers to ask questions, make comments, and get advice from experienced filmmakers as well as other members of the community. The forum would need to be monitored and managed, but the potential benefits if there were sufficient uptake are considerable. Right now, filmmaking expertise is distributed unevenly, and while digital fora are not magic bullets that drop all barriers, they have proven very successful in many settings to provide wider access to expertise and advice. Into Film could offer experienced filmmaking tutors some kind of kudos system that offers them some kind of intangible benefit within the BFI. Setting up this forum would require working with experienced filmmakers and mentors from Into Film to do a feasibility study of a free, kudos-based support network for schools.

**Application Functionality**

In our experience, teachers don't merely want suggestions or guides to choosing apps. They want straightforward answers that let them most effectively and efficiently teach their students new skills and knowledge. One option would be then to create the “perfect app” for all their needs, if such a thing exists. At the very least, teachers would like organizations like Into Film to make very firm recommendations that they can use in their planning, but also take to their administrators to garner support for investment in filmmaking as a school-based activity.
Based on our experiences in this project, what are the elements of the “perfect app” for tablet-based filmmaking? While we don’t pretend to have a comprehensive list, there are a number of elements that we would recommend:

- Build the app for the iPad platform, since Android devices are too variable in their capabilities and offer too many difficult choices for teachers
- In-app quick tips with dos and don’ts on general filmmaking and iPad filmmaking
- A dedicated YouTube channel with films made with iPads, and tutorials on iPad filmmaking with tips and techniques for various levels of student. These can be accessed on the iPad via the app, which would have an area to access YouTube tricks and tips covering basic filmmaking, editing and filming with tablets.
- Providing the iPad with a more comprehensive camera view with a choice between simple and more complex settings.
- Optional autofocus, white balance, and other control features such as separate semi-manual focus, exposure and white balance, and even points for automated focus pulling if the technology allows this
- A built-in level to show the operator whether the iPad is level
- An on-screen grid to better teach students the Rule of Thirds
- The ability to label shots, and add indicators marking shots as good or bad
  - For instance, providing logging information on capture would entail building in functionality to bring up a series of buttons when filming stops that would allow the operator to mark the shot as “no good” to hide the shot (but not delete it unless space becomes an issue), or “good”, or “OK, but possibly replace”. This would allow the operator to be able to see quickly what shot is working, but would also then transfer this information to the editing process to make shot selection quicker and easier during editing.
- As with the camera view, provide a more comprehensive editing package with a choice between simple and more complex settings
- In terms of editing, give the editor more control to split clips, to separate video clips from their sound, and to correct colour across the film
- Provide the editor with a more professional environment, in which the default transition is the straight cut, the other options are limited to professional transitions and not geared towards cute family and holiday videos.
- It is important to develop a policy on sound. If sync sound is crucial, we need to find a cheap and easy way for schools to do proper sound recording. This will have to be a separate device which either sends audio to the camera/iPad via Bluetooth or which can be automatically post-synced in the editing software. The other option is to concentrate on visual storytelling and recommend alternative storytelling techniques like using music and voice-over narratives. The third option is that we just accept that the sound will always be of poor quality, especially since sound recording in schools is very difficult anyway given the uncontrollable background noises.
- Likewise, it is important to develop a policy on grips. Is it important to teach traditional grip techniques to young people, such as tripod mounted camera moves and dolly mounted camera moves? Or is it acceptable to rely on hand-held uses of iPad devices?

Broader Considerations

There is a broader debate to be had amongst the filmmaking community, industry representatives, teachers, students, education experts, educational institutions such as NFTS, and other interested stakeholders with regard to what we really hope to achieve from promoting iPad-based filmmaking. There are a range of possibilities, including:

- Providing a casual introductory filmmaking experience for all students
- Teaching a deeper knowledge of film-based storytelling by watching, studying, and creating films
- Providing an opportunity for students to informally explore filmmaking with a very accessible device, using guided play and experimentation to discover what they can about it for themselves
- Lowering the barriers to getting a better understanding of all the formal industry processes of filmmaking, particularly for students interesting in becoming part of the world of filmmakers in their careers
• Supporting existing school curriculum
• Advocating for shaping and extending the existing curriculum with regard to filmmaking
• Teaching technical filmmaking skills
• Teaching transferrable skills, using filmmaking as an accessible way to promote team-based work, technology use, English skills, and media studies

Two approaches which demonstrate the range of possibilities are the Formal Approach and the Playful Approach. These both can make use of iPad-based filmmaking, but to different ends, as follows:

The Formal Approach

If a more formal approach to teaching filmmaking were pursued, it would be necessary to shape the curriculum to give students experiences of the full process of filmmaking, from development through to the final mix. Part of this would be exposing the process via videos showing the processes in action, with a realistic explanation of the vast amount of work involved. It is worth noting that DVD “making of” features tend to portray visual effects, for example, as easy and exciting, rather than the great drudgery factory that it often is. They also never talk about endless script rewrites and contradictory notes from script editors and producers that are a reality of life in the filmmaking industry.

Students experiencing this formal approach would then have some kind of hands-on experience of the full process through a complete app or suite of apps, covering:

• Watching and studying exemplar short films
• Short videos demonstrating exemplar techniques
• Idea development
• Character development
• Story outline development
• Storyboarding and pre-visualisation
• Screenwriting
• Shooting
• Picture Editing
• Sound editing
• Visual effects
• Music
• Sharing work with experienced filmmakers for comment
• Sharing work with other students

This app or suite could licence existing technology or start from scratch.

The Playful Approach

Should it be decided to use or include a more play-based approach, the immediacy of the iPad will enable students to experiment with filmmaking rather than forcing them to go through a process that they neither understand nor need if they don’t have aspirations of professional involvement in filmmaking.

One problem with the formal process, particularly for the less invested student, is that it requires a thorough understanding of the later processes and how they relate to the earlier processes. For example, storyboarding requires a thorough understanding of shooting and editing to understand how the storyboarded shots are likely to come out. Many students really want to just get out there and shoot stuff. Things like screenwriting and especially storyboarding are answers to problems the students haven’t encountered yet. Through guided play, students can experiment with different shots and see how they work. Students have a tendency to just shoot in wide master shots. By encouraging them, having done that, to then try shooting closer shots with interesting and meaningful angles, they can discover, for example, how to make an action sequence more exciting. With an iPad they can keep shooting and re-editing and thus see what works.

This approach would require carefully thought out and thoroughly tested exercises and activities designed help students find their way to effective techniques, allowing them to discover things without making them feel they
are being forced down a particular path. It could be an effective means of engaging a broader range of students than the more formal approach.

These two approaches are not mutually exclusive; they can easily co-exist side-by-side for different implementations in different settings. However, it is better to be clear which approach is being followed by a particular teacher or student than to have a mixed-up mess that includes confusingly blended parts of both approaches.
Appendix: Available Technology

List of technology reviewed as part of the project. Some of these were used with students, others were reviewed and either chosen for testing with the students (in **bold**), or rejected for a variety of reasons.

**Software**

- iMovie
- Notability
- Popplet
- Storyboard Quick
- Action Movie FX
- Animoto
- Bamboo Paper
- Cameo
- Cinefy
- Filmic Pro
- IgCamera
- iMotionHD
- Intro Designer for iMovie
- Movie Pro
- Moviestar
- Paper by FiftyThree
- Reel Director
- Scapple
- Shot Lister
- Sketch Pad
- Spark Camera
- WeVideo

**Peripherals**

- Olloclip Lenses for iPad
- Apogee Digital Microphone for iPad
- Rode Mic for iPad
- Zoom iQ5 iPhone 5 Microphone