AMORES

An Approach to Motivating learners to Read in European Schools

Participant contributions during online training run as part of AMORES

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1. How to use this document

This guide has links to online resources and so should be used in its electronic format, **there is no need to print it off**.

This guide contains an **overview**[1] of the recommended resources that can be used to enable young people to discover a love for literature through digital collaboration and creativity. All of the resources described here were used in the AMORES workshop and further developed from input that occurred during discussions and modified based on feedback.

There are links to both the software that you can use in the classroom to create e-artefacts and the resources which explain why they are useful.

There are also helpful hints on activities to consider and potential issues that need to be thought through before embarking on your teaching and learning activities.

2. Video tools

Overview

The use of video in education is becoming more popular and is considered to be a useful and highly engaging medium. Its usage is changing, however, and this video examines how the use of video might be maximised.

This resource gives examples on how video can be used in the classroom.

There are many tools for making online video, Windows supplies its own software (Moviemaker) free with its operating system and Apple's iMovie is free with some devices and paid-for through others.

MovieMaker

Has its own online Help function. It is easy to use and movies can be created quickly.

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[1] Note: These tools were discussed by the teachers in the online workshop. For a full and detailed review of potential technologies please see D2-2 – The Technology Selection Report

Personal experience from workshop participants:

It's great for editing, compiling and trimming, a very intuitive interface and I like the drag and drop elements, having the fluidity to chop and change things, or just ctrl-z still seems a bit like magic to me!

You can download from here.

The Help link for Moviemaker can be found here.

iMovie

This is available as standard with some Mac products but is available at a cost for iPad and iPhone.

It is easy to use and movies can be created quickly.

You can download iMovie from here.

The iMovie Help link can be found here.

Suggested activity by workshop participants

- When using video it is essential to be specific about is **what sort of tasks we need the learners to do**. Working in groups of three to present about a book they have read (and are enthusiastic about) is a good idea. What is the book about and why do they like it so much?

- Give a short introduction to the tool and then let the pupils make a very short film where they present an item.

- Give guidelines about what should be included in terms of format (background music, effects, subtitles etc). Either propose a presentation format or discuss different styles of 'presenting' and analyse the key features associated with these different approaches, to help enable the learners to choose what they want to do.

- Make sure students create an 'outro' (end section) as well as an 'intro'.

- Concentrate on the narrative and not on being creative. Encourage them to concentrate on the narrative and limit the time and decisions associated with creative choices.

- Upload the videos to a social networking platform and encourage them to comment and rate each others' videos.

- Think about the amount and nature of the feedback we encourage the students to give each other. Could we ask them to comment on what things they think *didn't* work about the video as well as did? It might be an opportunity to get them to reflect on how these things are constructed and how to improve next time.

- Talking about the book narratives in relation to film genres/ film directors, can help encourage young people to engage in the discussion and to think about the relationship between the film style and the content of the film (in our case we would hope it would become discussions about the book).

- There's a UK **website about film making** accessed here which people might find useful- with downloadable film-making guides for, and by, young people:

Potential teaching and learning concerns raised by workshop participants

- Time

The biggest disadvantage to the use of video in education relates to the resources required- not just camera and lights etc, but the **time taken**. In schools that have the flexibility in the curriculum this might not be so much of a problem, but where there is less space to take on new stuff then there is the concern that the time taken to make and edit the video has to be taken away from other duties.

The schedule has to be very carefully balanced against the other commitments of the students. The problem isn't that the students don't find time for the videos; it's that they like doing it so much that it detracts from the time they spend on other things.

- Learning

The other problem is that there is a **tendency for students to focus on the production of the video rather than the learning** from making it. One of the advantages of video-production as a learning tool is that it gives students who perhaps have talents that aren't normally recognised a chance to shine, and show off those talents to their friends. This is a good thing for boosting their self-esteem and commitment to the course, so should be encouraged, **but sometimes making a good video gets in the way of thinking about the content of the video**, which is where the learning comes in. As an aside, this is also a problem for assessment. It's so easy to get side-lined as an evaluator by a great-looking video, but **it's important to remember we're looking at how well the content of the course has been learnt in making the video**.

- Music and copyright

On the subject of background music; if they are going to have their **video included in the public showcase then the music must be copyright free or composed by the students themselves**. There is public-domain music they can use, or they can make their own. Or perhaps other students from other schools could contribute some.

3. Comic strip generators

Overview

Comic strips are useful tools because:

1) They are very short forms (usually just three or four frames, but can be as short as one, or can fill an entire page).

2) If you're using a generator they don't require any ability to draw to get the story across

3) Creating a comic strip (in the form of a storyboard) is the first step in developing a video.

4) They can be a very expressive form, mixing together images and a small amount of text to produce a very short story with an impact. One of the UK's most influential writers, Alan Moore, began his career with the comic strip *Maxwell the Magic Cat*, and lots of the most popular figures in culture began their lives in comic strips.

5) They're free.

And… they are great fun but we should not lose sight of why we might use them, remember the central task is to use them to teach literature.

Each comic strip generator (CSG) has different advantages and disadvantages. **Witty Comics** is good because it has a function that lets you duplicate slides, which means you don't have to find the correct background and characters each time, which would help with the British Council one as they also ended up different sizes. The **British Council** and **Makebeliefscomix** let you resize and move the characters and objects, but only the British Council one lets you rotate them too. Altogether there isn't one single CSG that really works easily and gives the flexibility you'd need to use them for exploring literature.

The tools

- In **Makebeliefscomix** the characters can be modified as they are available in a variety of formats. You can choose which way they are looking and where they stand - as well as the backdrop, speech bubble, colours, etc. It's really easy - the issue is ensuring that you get the right balance of enjoying playing with the technical aspects of character development alongside getting people to think about the content and more story related themes. Access this tool here.

- **ToonDoo** offers many pre-made content but also enables the user to draw his own content or create characters and use it in the comic. If the user has created a few comics it is possible to put them all in a book like a collection. Also, other users can edit your comic (if you allowed it). The good thing is that it does not edit the original but instead it makes a copy in your own repository, which can then be edited and has a link to the original. There is an iOS version of ToonDoo here as well.

- In **Witty Comics** the backgrounds are quite varied, but the options for characters are a strange combination of human and cartoon animal businesspeople. And the positions are limited to two characters facing each other. See here for the link.

- The **British Council** has created its own comic-strip generator, link to it here.

- **Bitstrips** was a comic strip generator that was very popular for a while. It works by people creating an avatar of themselves and uploading it to the site. You can then grant access to your friends on Facebook to your avatar and they can then create short comic strips with you and them in it. There is limited flexibility with what you can do with it though, since you are presented with a predetermined set of scenarios to add your avatar to, with some options about composition, and that's it. The effectiveness of it depends on 1) being able to find a prepared strip that seems appropriate and 2) how good your avatar is. There are challenges in expanding this sort of task for literature studies - maybe the learners register on Edmodo as a character from fiction and create an avatar of themselves, then find an appropriate scenario and discuss whether the characters would actually do that. Go to Bitstrips link here.

  Note: interoperability between Edmodo and Bitstrips may be an issue.

- **Heromachine**, according to the description on the website "lets you unlock your inner artist, enabling you to create professional-looking illustrations

even if you can't draw a straight line." The link is to version 2. There's a version 3 out now.

It's not really a comic strip generator, it only produces a single figure in a few poses in one frame, but it might be of use, see [here](#) for the link.

- **Mashable** gathered 6 comic-strip generators together. Depending on what you're going for, you can use one of these six sites to help you with your comic-strip creation. Access the link [here](#).

- **Free technology for teachers** list 10 ways to create comic strips [here](#).

Examples

Some examples of cartoons created by participants:

Alternative versions of fairy tales: These are really good little stories and an interesting take on the tales. Children can learn how formulaic the original stories are by changing them around a bit. It also demonstrates that the children have engaged with the medium and the story:

[Three Little Pigs](#) alternative

[Cinderella](#)

Little Red Riding Hood [one](#) and [two](#)

[ET](#)

Suggested activities by workshop participants

- Activities will be quite an interesting challenge given that most comic strip generators restrict use to just four boxes. Perhaps make short book reviews? If you manage to tell about your book in so few words you'll have to have understood what you were reading.

- Perhaps set up a task with questions and things to consider so that making comic strips could be a useful tool for comprehending what is being read.

- Distilling the key points into just 4 boxes could be quite challenging and would indicate that you have read and understood the book.

- It could be worth thinking about making these comic strip generators into short films - camera shot of first frame - children voice over the characters, then second frame and so on. It would make a nice minute-long short.

- Read a book for example, about a boy who became a superhero - Antboy. Afterwards the learners should become an expert in a specific superhero (Spider-Man, Superman, Superwoman...) and make a comic strip with the superhero and their enemies. Also have the students create the pictures and talk about perspective and which colours to use. Illustration can be a great way to discuss literature, for example, Harry Potter was published to look slightly different in other countries. It can really get young people thinking about the value and importance of illustration in relation to how a story is presented.

Potential teaching and learning concerns raised by workshop participants

- Perhaps Mashable and Freetech don't offer enough flexibility.

- Makebeliefscomix could be slightly problematic in terms of sharing - the only options are printing the comic strip out, or sharing the url, You could take a screenshot, but image quality may not be so great

- ToonDoo, lets you share elements between users, so characters can be created and then shared, and others could use that in their comic strips. BitStrips definitely enables you to do that, whereas if different platforms are used only the whole strip can be shared. Different comic-strip

generators have different features, so you may find using a range works better.

- The issue is that most of the comic strip generators have such a short range of different characters and situations that finding suitable applications for expressing ideas about literature might be really difficult. Although creating strips was fun (have a look at the examples above) actually commenting about literature can be problematic. The speech bubble sizes can be limited, or characters don't look right, or the form was too short to really get some ideas across. Comic strips are a good way to go, but perhaps the generators are too limiting and just drawing them may be better idea.

4. Games-based learning

Overview

There are no standard definitions of what games are and what is gaming, however, the following has been suggested as a useful definition. Games:

- have a formal structure with rules and goals,
- they involve chance, challenge or competition,
- they have a mechanism for scoring or other forms of feedback,
- they have the potential to form a narrative,
- they are separated from normal conventions, space and time.

This makes them distinct from simply play, which is open-ended, rather than goal orientated. Dressing up is play, but it is not a game. Chance, challenge and competition have been merged here because they have very similar roles in creating engagement with a game; competing against an opponent, overcoming chance, or solving a challenge all ultimately produce the same result, to produce a situation in which one can win or lose, which ultimately is the defining characteristic of a game.

The advantage of games for learning is that they are motivating. Many games have elements that have been identified to encourage game play to continue beyond the point of it being fun, in that they generate flow; a concept proposed by Mihály Csíkszentmihályi to describe a person's mental state when they are fully immersed in an activity: they have focus, energy, total engagement and feel a sense of success. The concept is regularly used by game designers as the ultimate aim for their game: to adjust the gameplay so that it creates a state of *flow* in players.

The final type of learning is through creating the game. If we consider the "Top Trumps" idea from the Stoke workshop, we can see the opportunities for learning are within the creation of the game, though not in the playing of it (for a more detailed discussion see Appendix 2).

The tools

- In **Top Trumps** for example, the design choices are simplified, making the creation process simpler. The card can be created in a range of ways, digitally, using **Paint, Photoshop**, **Word** or physically on paper **by drawing** or as a **collage**. The key elements are always the same, however, a title, a picture and between four six characteristics, each characteristic accompanied by a number between 0 and 10. The cards can also contain a brief bit of descriptive text. There are 30 cards in each pack usually, though to play all that is required is that each player has the same number.

- **Zondle** is designed specifically for the educational context where students can play and practise in any game of their choosing (web or mobile), keeping them engaged and helping encode more into their long-term memory (quote from Zondle website). Zondle, accessed here, It is fully compatible with Edmodo.

Suggested activities by workshop participants

Top Trumps of Superheroes or Gods from the Nordic mythology or Greek Gods.

The idea was to create your own game, create a world, figures with certain skills, action and maybe 3 challenges to clear. But we think, we can turn it around and let the learners make a computer game based on a book. In that way we will work with environment, the characters - their weak side and strength and so on. Maybe it would be a fun way to get though the different aspect of analyzing a book.

Rivers may be another excellent idea - getting students to think of five or six different parameters would be an interesting challenge in itself (length, volume of water per minute, countries passed through etc.).

We have been studying rivers as our topic and have used this to make our Top Trumps cards. We did a paper copy first whereby the children had to research non-fictional texts to find out about rivers of the world. From this they were able to create their own Top Trumps cards. Rather than using a particular site we created our own template for the children to use, this didn't take long and made it easier for the children to use.

For an example see Appendix 1 for the Space Game (rules are in Danish and English).

Potential teaching and learning concerns raised by workshop participants

No issues were discussed, they were regarded solely as a positive teaching and learning experience.

5. Virtual-learning Environment (VLE) for the classroom

Overview

Virtual Learning Environments (VLEs) are designed to support and enhance student learning and are defined as a set of online tools in which learners and tutors participate in online interactions of various kinds including online learning (e-learning). VLEs can act as the focus for students' learning activities (as well as their management and facilitation) which implies that not all the interactions have

to be online. These systems enable the student tutor interaction to take place remotely as well as locally or face-to-face. For the student group it means that students can work in a collaborative manner to share and generate knowledge within the VLE without having to travel from their local setting to achieve this.

The tools

Edmodo is a secure VLE/social medium particularly useful for, and recommended for using, in schools.

You can use this social medium to create a virtual 'classroom' and enable your pupils/students to use online collaboration to engage with their chosen text(s).

How Edmodo works can be seen via this YouTube video here.

You can create your account here to work in Edmodo.

You will also need to verify your account to help keep students protected on Edmodo. You can find out how to do so here.

In this video here, you will find step-by-step instructions on how to create your own groups, and how you can invite students to join.

Suggested activities

The interactive Quick Guides to Edmodo, for creating activities, are adapted for each group of users (young learners to secondary school).

Your students will be using Edmodo to share e-artefacts, the following videos here show you how to do this and shows you how students add files to their 'backpack':

How to add files to your library. You can create separate folders for individual literary works, or tools used to create e-artefacts. This will be very useful when you'll be making the final selection of artefacts to be shared in the public gallery shown here:

Once the e-artefacts have been uploaded you will want students to comment on them and interact. You can do this by starting a discussion and this tutorial shows you how to do that. Discussions can be started immediately or scheduled to start at a time that you find convenient.

In addition to responding to the opening comment, students and teachers can react to a post, thus providing immediate feedback (somewhat like "liking" on Facebook) see here.

Before you start uploading e-artefacts, you'll probably want to set a due date for submissions.

You might want your students to know when the next videoconferencing event is coming up. You can schedule tasks and events in the Edmodo Planner. This video here walks you through how to use it.

Potential teaching and learning concerns raised by workshop participants

Safety/security online is an important consideration, especially with regard to social media, so please read the Edmodo Parent Permission Form example. This will be particularly relevant when working with younger learners. You might also want to take a look at a sample Code of Conduct for use with pupils.

Passwords were raised as a problem, creating them and then students remembering them. This article linked to here makes some recommendations on creating memorable passwords.

Another suggestion is to get the children to write out their username and password both times on two separate cards, hand one in at the end of the session and take the other away with them. They've then got it on them if they want to go online at home and, if they've lost it, you can hand it out to them again when they come to the classroom.

There could be an issue with cyberbullying - but then the interactions need to be monitored, and anything like that responded to immediately in accordance with school procedures. Also it's an opportunity to talk through the issues of etiquette and behaviour online, which is an important learning point for children.

When we start using a new programme that's the time we experience most problems - how to make the setup, so they can see each other's work, or for them to give another learner reading and writing access and to sign all the students up.

6. Videoconferencing

Overview

The learning activities for videoconferencing consist largely of taking part in an authentic videoconference, encouraging reflection as part of that videoconference, and then considering how to emulate their learning experience as videoconference participants with their students.

"Authentic" is important in this circumstance as the experience of many practitioners of technology-enhanced learning is that people's first experience of videoconferencing is simply to demonstrate videoconferencing as a tool. Without a clear purpose for the videoconference, the value of videoconferencing is not made apparent, and will appear aimless. In order for the videoconference to properly demonstrate videoconferencing, therefore, it must about *about something other than videoconferencing*.

Within the AMORES project, this subject matter was targeted at planning the collaborative activities during the following year. We would suggest anyone following our experience to find their own valid activity for the workshop participants, and build an agenda around that.

The activities below therefore presume this agenda has been created. The remainder are the learning activities wrapped around this agenda, intended to teach the value of videoconferencing.

The tools

Many videoconferencing platforms exist; Skype, Flashmeeting, GoToMeeting, Marratech, Adobe Connect (also known by the earlier name of Macromedia Breeze). The essential requirements for the platform are that:

- It supports multiple video cameras (not just two or three sites)
- It has text chat features within it
- It can be accessed for no cost by attendees

Also preferable features are:

- The ability to share applications
- The ability to show the desktop
- Presence features such as handraising, question queuing, private chat

The platform recommended is Adobe Connect as this has all of the above features and, after Skype, is the most commonly used platform. However, Connect does require the host organisation to be a paid subscriber. All other participants only require a browser with Java installed.

Suggested activities by workshop participants

- Technical Set-Up

  Before the beginning of the videoconference, a period of 30 minutes to an hour should be set up to enable those who have not used their technical set-up before to test it and ensure it is working effectively. Provision should be made for one-to-one testing in advance of the meeting for those who are particularly unsure of their technical set-up. A common issue is to not have Java installed, and to need administrator access to download and install it, which cannot be done at the last minute.

- Ice-breakers
  Once the meeting starts, begin with a period of ice-breaking and chatting to ensure a social environment. Ensure you greet each person as they appear

on screen, either through the chat or verbally. This can also help pass the time inconspicuously while waiting for those with technical issues.

Use ice-breakers that transfer the participants' sense of location from their physical space to the online space. Examples are passing an object from image to image, a person passes an object off to the left or right of their image on camera so that it disappears off-screen. The person whose image that is pretends to take that object (they simply use the nearest equivalent in their space) and pass it off-screen in another direction. As most videoconferencing arranges the images in a grid pattern, this can be up and down, as well as left and right. A Mexican wave is an alternative, or another popular one is spelling out Y-M-C-A on screen. It helps if someone has a Village People CD.

- Etiquette and features
Run through the etiquette of participating in a videoconference. To effectively chair a videoconference requires three chairs, a talking host, a chat-text chair and a technical supporter. The verbal host manages the verbal interactions, introduces presenters, and asks for questions. The chat-text host reads the chat-text and the technical supporter helps out anyone who is having technical difficulties. Explain that technical problems should be made in private chat to the technical supporter, and not publicly. The chat-text host is there to flag questions that arise in chat, as keeping track of chat, and managing the verbal interactions is very difficult. Explain hand-raising features and to use them when participants want to ask questions.

A good presenter will break frequently to ask for questions and feedback, and will keep an eye on the hand-raising feature to see if anyone wants to break in. When the chair asks for questions, this is the prompt for the text-chat chair to pass on the questions that have appeared in the chat, and summarise any points that have been made for the presenter.

Another important part of etiquette is to not allow echoes to originate from your computer. This issue is because the microphone picks up the output

from the speaker and feeds it back into the videoconference. Many computers have a system that turns off their microphone when a sound comes out of their microphone, which suppresses this effect. Without it however, this must be done manually, or preferably the participants uses a headset (though this is, of course, not a solution if there is more than one person at a site). A good chair will also not attempt to continue in spite of echo, since this will severely reduce the ability of everyone to communicate, but will go through the following steps if echo occurs:

a) Remind all participants to either use a headset or turn off their microphones if they are not talking.

b) If echoes continue, specify who is creating the problem and address them directly.

c) If they do not turn off their microphone when not using it, warn them they will have their microphone turned off.

d) Finally, exclude them from being able to take part verbally in the videoconference by turning off their microphone using the host features.

- Tips for videoconferencing/prior experience discussion
Once the features and etiquette have been explained, the Top Tips for Videoconferencing document can be gone through (see Appendix 3) though it is best to keep this activity short, unless people have their own experiences or input to contribute, in which case allow it to develop into a discussion.

- The agenda
In order to make the videoconference an authentic experience, the videoconference should have a purpose beyond simply experiencing videoconferencing. Planning future activities, sharing research, reflecting on previous activities are all potential areas, but will vary from course to course.

- Reflect on experience

  If there is time, the participants reflect on their experiences of the videoconference, and give their feedback on what worked and what didn't. This can then be followed up as an online discussion. The length of the videoconference should be from one hour to ninety minutes. Less than this and the amount that has been learnt from the experience does not justify the set-up time, more than this and maintaining attention becomes difficult and the productivity of the task is reduced. Appendix 4 includes a sample reflection on a videoconference.

- Step by step guide with script/lesson plan

  On https://loomen.carnet.hr/mod/resource/view.php?id=183550 there is a specific example of how to carry out a videoconference in a school. All the things you need to consider including a script which can act as a lesson plan. To access this resource, paste the link in your browser.

Potential teaching and learning concerns raised by workshop participants

No issues were discussed, they were regarded solely as a positive teaching and learning experience.

7. Appendix 1: Space Game: Vejledning til Rum kortspil

1 Solen — Altid
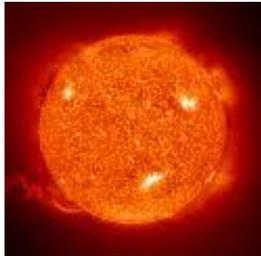
Nr fra solen	S1
Diameter	1.500.000 km
Diameter	100 jordkloder
Afstand til solen	0 km
Årslængde	2.200.000.000 år
Dagslængde	0
Temperatur	15.000.000 ^{0}C
Antal måner	0

2 Merkur — Oldtid
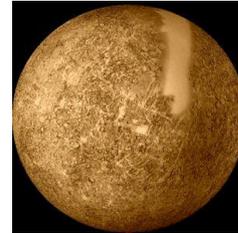
Nr fra solen	P1
Diameter	4.878 km
Diameter	0,38 jordklode
Afstand til solen	58.000.000 km
Årslængde	88 jorddage
Dagslængde	58 jorddage
Temperatur	430 ^{0}C
Antal måner	0

3 Venus — Forhistorisk

Nr fra solen	P2
Diameter	12.104 km
Diameter	0,95 jordklode
Afstand til solen	108.000.000 km
Årslængde	225 døgn
Dagslængde	243 døgn
Temperatur	400 ^{0}C
Antal måner	0

4 Jorden (Tellus) — Altid

Nr fra solen	P3
Diameter	12.756 km
Diameter	1 jordklode
Afstand til solen	150.000.000 km
Årslængde	1 år
Dagslængde	1 døgn
Temperatur	14 ^{0}C
Antal måner	1

5 Mars — Forhistorisk

Nr fra solen	P4
Diameter	6.795 km
Diameter	0,50 jordklode
Afstand til solen	228.000.000 km
Årslængde	687 døgn
Dagslængde	24 t og 37 min
Temperatur	-23 ^{0}C
Antal måner	2

6 Jupiter — Oldtid

Nr fra solen	P5
Diameter	142.986 km
Diameter	11 jordkloder
Afstand til solen	778.000.000 km
Årslængde	11 år og 19 mdr
Dagslængde	9 t 50 min
Temperatur	-150 ^{0}C
Antal måner	63

7 Saturn — Oldtid

Nr fra solen	P6
Diameter	120.537 km
Diameter	9 jordklode
Afstand til solen	1.427.000.000 km
Årslængde	29 år 6 mdr
Dagslængde	10 t 39 min
Temperatur	- 180 ^{0}C
Antal måner	33

8 Uranus — 13/3 - 1781

Nr fra solen	P7
Diameter	51.118 km
Diameter	4 jordkloder
Afstand til solen	2.870.000.000 km
Årslængde	84 år
Dagslængde	17 t 14 min
Temperatur	-214 ^{0}C
Antal måner	27

9 Neptun   23/9-1846

Nr fra solen	P8
Diameter	50.538 km
Diameter	4 jordkloder
Afstand til solen	4.497.000.000 km
Årslængde	164 år 10 mdr
Dagslængde	16 t
Temperatur	- 200 ^{0}C
Antal måner	13

10 Pluto   18/2-1930

Nr fra solen	D2
Diameter	2.320 km
Diameter	0,20 jordklode
Afstand til solen	5.900.000.000 km
Årslængde	248 år
Dagslængde	6 døgn 9 t
Temperatur	- 230 ^{0}C
Antal måner	3

11 Eris   8/1-2005

Nr fra solen	D3
Diameter	2.400 km
Diameter	0,19 jordklode
Afstand til solen	5.670.000.000 km
Årslængde	560 år
Dagslængde	- døgn
Temperatur	- ^{0}C
Antal måner	1

12 Ceres   1/1-1801

Nr fra solen	D1
Diameter	950 km
Diameter	0,07jordklode
Afstand til solen	- km
Årslængde	-
Dagslængde	-
Temperatur	- ^{0}C
Antal måner	0

13 Månen — Altid

Nr fra solen	M1
Diameter	3.476 km
Diameter	0,27 jordklode
Afstand til solen	150.000.000 km
Årslængde	1 år
Dagslængde	27 døgn 8 t
Temperatur	- 23 ^{0}C
Antal måner	0

14 Io — Jupiters måne — 7/1-1610

Nr fra solen	M4
Diameter	3.660 km
Diameter	0,28 jordklode
Afstand til solen	778.000.000 km
Årslængde	11 år og 19 mdr
Dagslængde	1 døgn 19 t
Temperatur	- 179 ^{0}C
Antal måner	0

15 Europa — Jupiters måne — 7/1-1610

Nr fra solen	M5
Diameter	3.122 km
Diameter	0,24 jordklode
Afstand til solen	778.000.000 km
Årslængde	11 år og 19 mdr
Dagslængde	3 døgn 13 t
Temperatur	- 170 ^{0}C
Antal måner	0

16 Titan — Saturns måne — 10/10-1846

Nr fra solen	M10
Diameter	5.150 km
Diameter	0,40 jordklode
Afstand til solen	1.427.000.000 km
Årslængde	29 år 6 mdr
Dagslængde	15 døgn 22 t
Temperatur	- 179 ^{0}C
Antal måner	0

17 Calisto Jupiters måne   7/1-1610

Nr fra solen	M7
Diameter	4.821 km
Diameter	0,38 jordklode
Afstand til solen	778.000.000 km
Årslængde	11 år og 19 mdr
Dagslængde	16 døgn 17 t
Temperatur	- 150 ^{0}C
Antal måner	0

18 Ganymedes Jupiters måne   11/1-11610

Nr fra solen	M6
Diameter	5.262 km
Diameter	0,41 jordklode
Afstand til solen	778.000.000 km
Årslængde	11 år og 19 mdr
Dagslængde	7 døgn 4 t
Temperatur	- 164 ^{0}C
Antal måner	0

19 Rhea Saturns måne   23/12-1672

Nr fra solen	M9
Diameter	1.528 km
Diameter	0,12 jordklode
Afstand til solen	1.427.000.000 km
Årslængde	29 år 6 mdr
Dagslængde	4 døgn 13 t
Temperatur	- 197 ^{0}C
Antal måner	0

20 Dione Saturns måne   10/10-1846

Nr fra solen	M8
Diameter	1.118 km
Diameter	0,09 jordklode
Afstand til solen	1.427.000.000 km
Årslængde	29 år 6 mdr
Dagslængde	2 døgn 12 t
Temperatur	- ^{0}C
Antal måner	0

21 Ariel Uranus måne 24/10-1854

Nr fra solen	M12
Diameter	1.155 km
Diameter	0,09 jordklode
Afstand til solen	2.870.000.000 km
Årslængde	84 år
Dagslængde	2 døgn 12 t
Temperatur	-215 ^{0}C
Antal måner	0

22 Miranda Uranus måne 24/10-1854

Nr fra solen	M11
Diameter	466 km
Diameter	0,04 jordklode
Afstand til solen	2.870.000.000 km
Årslængde	84 år
Dagslængde	1 døgn 10 t
Temperatur	-214 ^{0}C
Antal måner	0

23 Triton Neptuns måne 10/10-1846

Nr fra solen	M14
Diameter	2.707 km
Diameter	0,21 jordklode
Afstand til solen	4.497.000.000 km
Årslængde	164 år 10 mdr
Dagslængde	5 døgn 2 t
Temperatur	- 239 ^{0}C
Antal måner	0

24 Proteus Neptuns måne 24/5-1981

Nr fra solen	M13
Diameter	402 km
Diameter	0,03 jordklode
Afstand til solen	4.497.000.000 km
Årslængde	164 år 10 mdr
Dagslængde	- døgn
Temperatur	- 203 ^{0}C
Antal måner	0

25 Phobos Mars måne   18/8-1877

Nr fra solen	M2
Diameter	26,8 km
Diameter	0,002 jordklode
Afstand til solen	228.000.000 km
Årslængde	687døgn
Dagslængde	7 t 39 min
Temperatur	40 ^{0}C
Antal måner	0

26 Deimos Mars måne   12/8-1877

Nr fra solen	M3
Diameter	15 km
Diameter	0,001 jordklode
Afstand til solen	228.000.000 km
Årslængde	687døgn
Dagslængde	ca 1 døgn 14 t
Temperatur	40 ^{0}C
Antal måner	0

27 Charon Plutos måne   22/6-1978
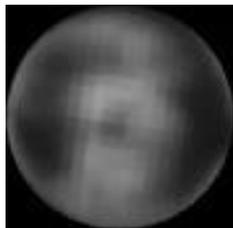
Nr fra solen	M15
Diameter	1,205 km
Diameter	0,09 jordklode
Afstand til solen	5.900.000.000 km
Årslængde	248 år
Dagslængde	6 døgn 9 t
Temperatur	– 230 ^{0}C
Antal måner	0

28 Hydra Plutos måne   15/6-2005

Nr fra solen	M16
Diameter	160 km
Diameter	0,01 jordklode
Afstand til solen	5.900.000.000 km
Årslængde	248 år
Dagslængde	-
Temperatur	- 230 ^{0}C
Antal måner	0
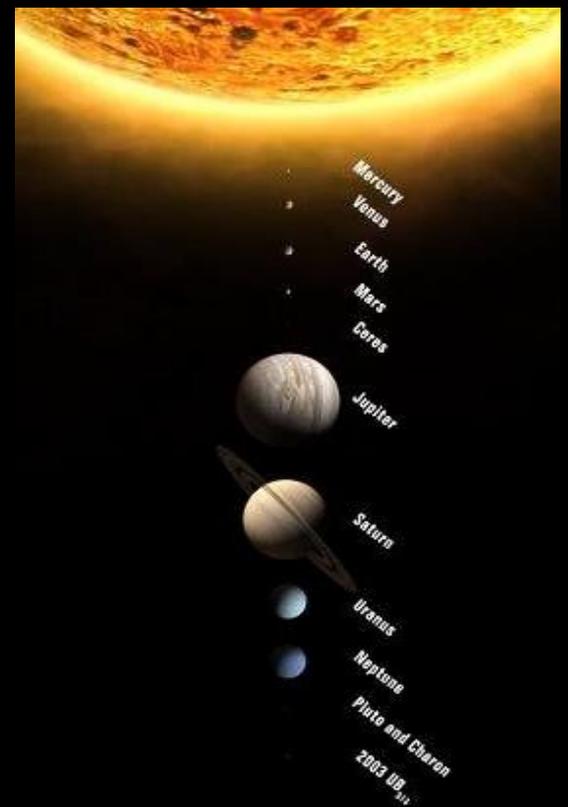
8. Appendix 2: What are games?

There are no standard definitions of what are games and what is gaming however, the following have been suggested as a useful definition. Games:

- have a formal structure with rules and goals,
- they involve chance, challenge or competition,
- they have a mechanism for scoring or other forms of feedback,
- they have the potential to form a narrative,
- they are separated from normal conventions, space and time.

This makes them distinct from simply play, which is open-ended, rather than goal orientated. Dressing up is play, but it is not a game. Chance, challenge and competition have been merged here because they have very similar roles in creating engagement with a game; competing against an opponent, overcoming chance, or solving a challenge all ultimately produce the same result, to produce a situation in which one can win or lose, which ultimately is the defining characteristic of a game.

Educational gaming projects have found the distinction between "toy" and "game" a useful one. A toy in this definition is simply the artefact with which someone can play; without structure, rules and feedback it does not constitute a game. Thus, Lego on its own, is not a game, but a toy. However, set the task of building the tallest possible tower from Lego, and elements such as competition and the opportunity to win or lose are introduced and it becomes a game. Minecraft as a world, is just a toy, and can be played in two modes, either simply to explore and build within the world (when it is just play) or in survival mode when one must defend against monsters and do so within a time limit. It is by adding in this element of challenge that it then becomes a game.

Various sub-categories of games can be produced from taking or adding elements to the above categories. Thus a game fulfilling all of the criteria but with no narrative, and with challenge (rather than competition or chance) becomes a puzzle. Add the physical element to the above factors, and we arrive at a version of games called sport. Remove the element of competition or challenge from a

role play game, and it becomes interactive fiction, and indeed some digital games (for example Mass Effect 3) now have a mode in which the challenge element can be removed, resulting in simply a branching storyline.

What is gamification?

Gamification is a recurrent buzzword in education at the moment as it tries to import one element of gaming to education, which is the competitive element. Gamification takes the extrinsic elements from games related to scoring (such as leaderboards, prizes, badges etc.) and adds them to other disengaging situations (such as those in work, education or household chores), but without considering other game design aspects.

Gamification has been around in education for decades, such as giving credits for good pieces of work, or attendance, and having leaderboards in schools. Where these marks are aggregated by class it can encourage teamwork and motivate through peer pressure. Advocates of this approach point to the quick development time, and the motivating aspects of particular game elements (such as the acknowledgement of an "achievement unlocked" through a badge system. Critics, however, suggest that what results is nothing like a game - as the underlying design principles are eschewed - and that any motivation will therefore be short-lived and unlinked to the core task.

How do games relate to learning?

The advantage of games for learning is that they are motivating. Many games have elements that have been identified to encourage game play to continue beyond the point of it being fun, in that they generate flow; a concept proposed by Mihály Csíkszentmihályi to describe a person's mental state when they are fully immersed in an activity: they have focus, energy, total engagement and feel a sense of success. The concept is regularly used by game designers as the ultimate aim for their game: to adjust the gameplay so that it creates a state of *flow* in players. This persistence in game play is attractive to teachers/learning environments and promotes the development of '21st century skills', specifically as it may enable students to persist in a variety of tasks beyond games, and in their lives. Studies

link 'reward' hormone response systems that release dopamine to the moments when particularly difficult goals are achieved. The sense of achievement and positive emotions leads to a continued pursuit of further goals. It is this motivation that teachers hope to harness in their learning environments when using games as a safe learning space for students, where they are aware that the goals set within the game are achievable, allowing them to tap into their intrinsic motivation to complete the game, and learn along the way.

For some students, games can also provide a better experience of learning that the classroom. Egenfeldt-Nielsen (2005) compares the difference in experience in arcades and classrooms and noting that the games played in arcades provide "clarity of task, choice in problem-solving strategy, possibility for self-improvement, balance between skills and challenges, clear feedback, enjoyment while learning and lack of fear of failure" the implication being that, for some, the classroom does not provide this kind of learning environment.
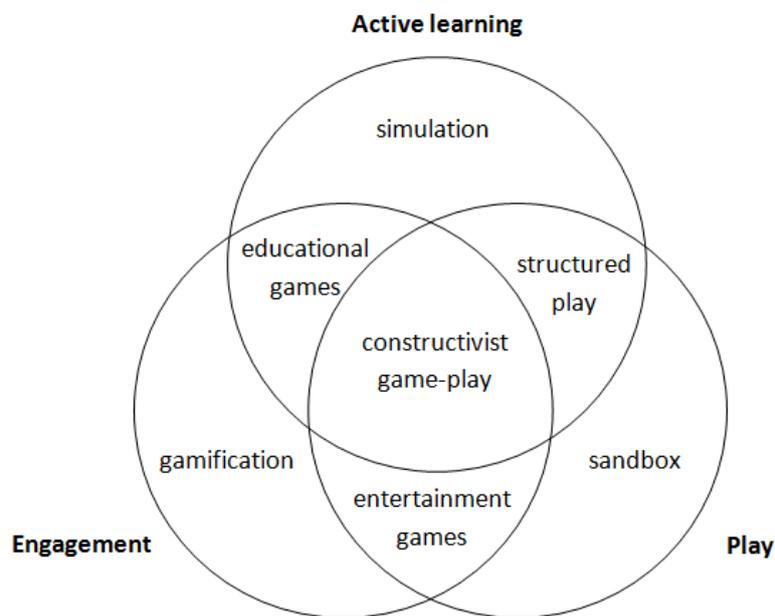

Figure 1. Engagement, play and active learning

McFarlane et al. identified three ways in which learning could be drawn from games:

- as a result of tasks stimulated by the content of the games,

- knowledge developed through the content of the game,

- skills arising as a result of playing the game. This last one could be subdivided into direct and indirect learning." (McFarlane et al., 2002).

To this could be added "knowledge learnt through creating the game". Other attempts to codify the various ways games and educational activities inter-relate is shown in figure 1.

So, examples of games that provide knowledge draw on the transmission model of learning - transferring knowledge from a person or system to a learner. Games using this approach include drill-and-practice games and tutoring systems in which users are given questions to answer and are supplied with feedback based on those answers. These types of games are limited in that they do not change the way in which the users interact with the subject content.

Games from which people acquire skills and understanding through from playing the game draw on constructivist models of learning; these place the internal thought processes of the learner at the centre of the activity and require the user to solve problems and explore the game environment, for example in a roleplay or similar activity. However, the learning and accuracy of the learning is then constrained by the learners' ability to create their own synthesis or identify the knowledge embedded within the game). This is a tendency noted by observers such as Egenfeldt-Nielsen (2005) and Squire (2005); which is that often the educational value of the game is failed to be achieved due to the learning elements of the game not being adequately placed within a learning context. In other words, the students may have acquired learning, but unless that learning is made explicit to the students, then they may not see the relevance of the knowledge acquired in relation to their curriculum

This leads us to the first of Angela MacFarlane's categories; that of learning being due to the result of tasks stimulated by the content of the games. In other words, the game is played and this becomes the motivation for further work in the classroom (for example). It is for this reason that some educators, such as Egenfeldt-Nielsen have stated that a **"game is just an excuse for a debrief"**, in

that it is how the educator uses the game within the context of the rest of his/her teaching that is where the full benefit of the game is capitalised upon.

The final type of learning is through creating the game. As we've seen in the literature review, the highest order thinking skills in Bloom's taxonomy are those associated with creating. If we consider the "Top Trumps" idea from the Stoke workshop, we can see the opportunities for learning are within the creation of the game, though not in the playing of it.

In Top Trumps, the design choices are simplified, making the creation process simpler. The card can be created in a range of ways, digitally, using Paint or Photoshop, or physically on paper by drawing or as a collage. The key elements are always the same, however, a title, a picture and between four six characteristics, each characteristic accompanied by a number between 0 and 10. The cards can also contain a brief bit of descriptive text. There are 30 cards in each pack usually, though to play all that is required is that each player has the same number.

Once the basic design is decided, there then comes the task of deciding which characteristics should go on the cards. Taking the theme of Greek Gods, and Superheroes, means that the learners have to think of a number of characteristics that are important; bravery, honesty, power, strength, intelligence, speed – these are all qualities that can be opportunities to learn about how characters are represented in myth and fiction and also how the children personally consider these to be important. The selection process by which the preferred 4, 5 or 6 characteristics is a chance to learn decision-making and democratic processes. The need to combine these themes to play the packs against each other also makes additional demands on the learners – what are the qualities of the stories and characters of Gods and Superheroes which they have in common? A book on this subject, by Grant Morrison, MBE, called *Supergods* indicates that they have a similar archetypal role in our culture.

Once these characteristics have been decided, the learners must then select the 30 most suitable characters for the game, and then a design and some text to represent them. Then comes the task of assigning numbers to the 4, 5 or 6

characteristics. This cannot be done freely. To make a good game there must be a balance of low scoring characteristics and high scoring ones. Again the learners can use decision-making skills to assign these fairly. So how fast can the Flash run? Or Hermes fly? Are they the same speed? Should Zeus be as powerful as Superman or Galactus? If the Gods are all more powerful than the superheroes, then there won't be a fair game if Denmark is to play the UK, but if everyone is the same then the game won't be interesting. This is an opportunity to learn maths skills as well as literature ones.

Making the cards, choosing the short piece of descriptive text, and drawing the picture are all fun and engaging activities, but with the final goal being the creation of a set for everyone to play. Each child or group of children contribute a card to the set, but these can then be reproduced so everyone has a set. The game is played by each pack being dealt between the players, the first player picks a characteristic from the top card, and if that scores higher than his/her opponent, both cards go to the bottom of his/her deck. If they are the same they go into a pile between them, if it is lower, the opponent places both cards at the bottom of their deck. The winning player gets to call the next characteristic. Again, if both are the same they are added to the pile between them, until one player wins, at which point they collect all the cards on the pile. The game continues until one player has won all the cards. It therefore involves maths skills (what are the chances of a particular characteristic beating another) and memory (e.g. "Hephaestus is coming round soon and he scores high on intelligence but low on speed, so if I've got Ant Boy I'll pick speed not intelligence").

Also of course, if this is to be played across videoconferencing, and the game mechanics involves an exchange of cards, how can this be carried out? Again, another learning opportunity for the children.

This process reveals two important aspects of games-based learning. The first of these is to not leave the game to do the teaching, each step must be reflected upon and the learning made explicit for it to be made effective.

The second element is the essential problem with games-based learning, which is finding elements of the curriculum which can be made into games.

Issues with games-based learning

Gamification is ultimately unsatisfying because it is an externally, tacked-on scoring system, which does not intrinsically link content to game playing. The relationship between games' content and that of the curriculum can be described as either endogenous or exogenous "Exogenous games provide simple networks of generic, interactive strategies …Endogenous games connect game design and domain content by integrating relevant practices into the structure of the game." (Halverson, 2005). Research indicates that students display better recall of content when it is creatively embedded within the game endogenously, than simply added exogenously (Hostetter, 2006). In other words, games based learning works more effectively when the mechanics of the game have a structure that arises from the subject matter they are linked to. For example, health-based games are usually very effective, because in the simulation the goal is preserving the life of the patient. The role of being a medic is intrinsically score-based and this translates to the game very simply (the better the medic the fewer patients die). The Top Trumps game is linked to literary characters' characteristics, assigning them a value and then setting them against each other. Although the game itself does not represent actual aspects of the literature, the process of assigning characteristics does demand an understanding of the characters. Conversely, a game in which players play a first person shooter, and then in order to level up must answer a set of maths or physics questions, is not an effective example of games-based learning, since the maths questions and the game are not linked. Rodriguez (2006) encapsulates this need to align the course content and the game content by stating that educational games developers need to ask themselves the following questions:

- *What aspects of the subject matter in question already exhibit ludic features?*
- *And how can a game designer exploit and highlight these aspects?*

Another set of issues, though one usually associated with adults using games-based learning is that adult learners have a set of misconceptions about games in that they are:

- Frivolous and time-wasting.

- Only for young children.

- Not a respectable thing to do.

- Easy.

- Only able to provide inauthentic learning (Whitton and Hollis, 2008; 223).

Whitton and Hollins point out that the error in this presumption arises from the (largely refuted) concept of adult learning theory (or "andragogy"), which makes (unverified) assumptions regarding how adults learn differently from younger people.

The reality is that any learner may, or may not, have these reservations, irrespective of age, and so addressing these concerns is important with any learner. The potential danger of using games-based learning is that it is seen *only* as a game and therefore the opportunity to learn from it is overlooked. The debrief then becomes vitally important.

A further issue is one noted by Squire in Changing the Game in which he notes that learners who previously had an advantage in classrooms because of their academic ability can feel challenged by the introduction of games, since they encourage non-academic learners and introduce a skill set they may not have mastered to the same extent. Some research also indicates that gamers may resent the introduction of games, since it may be seen as the institution invading "their" territory.

Conclusions

So, in summary

- learning using games has a range of benefits: motivation, engagement, flow, fun.

- Games can be used for rote learning, role play and simulations, and especially to stimulate classroom discussions.
- Designing and creating games has even wider potential for learning.
- The game is just an excuse for the debrief, in other words, make explicit the learning that occurs because of the game.

However;

- The subject must relate to the game, and vice versa, otherwise the game will not be an effective learning tool.
- The learning may be missed in the fun, or the learner may not recognise the activity as a valid learning activity. "It's fun, so it's not learning".
- Introducing games-based learning is not without problems. Some students may feel threatened by it, so make explicit the specific learning outcomes from the game, and be on the look-out for those who are not adapting.

*Except where referenced, material compiled from the **Games and Learning White Paper** from the Association for Learning Technology's Games and Learning Special Interest Group, Editors: Alex Moseley, Educational Designer & University Teaching Fellow, University of Leicester and Nicola Whitton, Research Fellow, Manchester Metropolitan University. Contributors: Mark Childs, Senior Research Fellow, Coventry University, Katie Piatt, eLearning Services Manager, University of Brighton and Fiona Trapani, Teacher Educator and PhD Student, Melbourne Graduate School of Education, University of Melbourne.*

9. Appendix 3: Top Tips for Videoconferencing

Check all the technology works before the actual videoconference. Microphone, camera, connection, get a good lighting source too. Don't sit with your back to a bright light.

Paste text into chat for clarity.

Also a good idea to dedicate some time to getting to know each other first, and play about with the technology to get used to it and each other.

Exchanging information about each other and what you're doing beforehand helps a lot too, which is the advantage of mixing it up with social media activities

Have an alternative way of contacting each other in the same room, in case it goes really wrong, and make sure everyone knows what that alternative is. Often the connection goes and they're frantically emailing and I'm waiting for a text message.

The most annoying thing you can do in a videoconference is allow an echo to happen. If you hear the other end's voice twice, it means it's coming out of your speakers and going back into your microphone. If this starts happening, then turn off your microphone when you're not speaking. Second is just hearing your keys while you're typing, or your breathing. Again the solution is to turn off your mic when you're not talking.

Make sure you take timezones into account when scheduling. This is harder than it looks. Best solution is to go to a website like http://www.timeanddate.com/worldclock/converter.html to work it out for you. If you're working with Australia or New Zealand be specific about the day too. They'll be a day ahead and it's possible for them to turn up a day late. Pay attention to daylight saving, different continents go forward and backward on different days. Some countries don't change at all. Always include the timezone in your arrangements.

Print off all the information you need to refer to onto paper. There's enough happening on screen without overloading it with word files and everything too. Plus having the same physical artefact at both ends can give a stronger sense of connection between the two ends.

Break up the videoconference a bit, they can get dull very quickly. No one person talks for more than 5 mins. Classes have activities to do away from the screen.

Give people chance to respond. There are a lot fewer cues to tell people when it's ok to talk, so you'll need to pause for a longer time waiting for a response. There are numerous bits of software to compensate for this (and in some people's opinion this actually makes videoconferencing more participative than face-to-face meetings). For meetings, Connect and Flashmeeting have handraising functions, so keep an eye on these to see if people have a question, they probably won't interrupt you. The chat function is also a great way to respond to what the speaker is saying immediately, but without interrupting. It's not possible for most people to keep an eye on this at the same time as talking, and it's quite stressful scrolling back looking for salient points while everyone's expecting you to talk, so appoint someone to monitor it for you.

10.   Appendix 4: Sample reflection on a videoconference

Things that could have gone better

- The messing around with the pods* (I've learnt a new word). Not realising that rearranging things on our own screen rearranged them for everyone else was the issue here, I think. In future one person being host would simplify things - I liked the final arrangement (discussion) so would probably go straight to that next time.

- Keeping an eye on the hand-raising, chat and the images. Loads of times I missed a hand up. I always forget in between sessions how difficult it is to keep a check on these. More practice required, I guess. Also I spotted one or two people had been unintentionally excluded because I'd spotted their hand up, invited them to talk, but had not given them long enough to come in before assuming the hand was up by accident, so moved on.

- The hands-up thing works usually - I'm just a bit rubbish at keeping an eye on it on top of everything else. Hopefully I got round to everyone

eventually. There is actually a pop-up box flagging that someone's put their hand up. This worked better at grabbing my attention when the pop-up occurred, but the popping up didn't always happen, so I was reduced to looking for the icon on the list of "attendees".

- Finding out when people needed to leave. By luck we'd got to the end of the agenda by the time people had to get on to other things. 90 mins is about the right length for a meeting like that anyway. Any shorter and it's not taking full advantage of the fact we've all managed to get together, any longer and it's too exhausting. Next time we should specify end time as well as start time.

- Ice-breaker: The thing about ice-breakers is you don't segue from doing them to immediately talking about the rationale behind doing them, because that then just makes people feel self-conscious again. The passing the mug thing is a good one, another that works well is a Mexican wave. Or you can get people to spell out YMCA. Anything that encourages the sense of a shared space between the images on the screen is helpful. (Sorry, I'm over-explaining it again). I did feel a sense of community again though when we were all on screen together (hopefully J and M didn't feel left out**), particularly when the camera images were at their largest. It was good to see you all.

Things that I thought went OK

- Deferring discussions about technology, deferring discussions about the pods. I think it was good to play about with the tablets for a while, and talk about some of the issues. I hope people didn't feel I cut the discussion too short though, but I felt it was important to get on. Trying to fix the pods might have meant people for whom they weren't working felt more included, but would have taken too much time.

- Keeping people involved and keeping the discussion moving. The "top tips" idea as an agenda item got dull pretty quickly, so I cut it short, (an example

of not letting one person talk for too long). The intro was useful, but it was more important to show videoconferencing than talk about it. I think the balance between experimenting, talking and including people was about right.

*Pods are the name for the separate applications that appear on the screen, such as chat text window, camera images, list of participants. In this videoconference, different people kept moving these around on the screen, not realising that they altering the view for everyone not just themselves, which became distracting.

** Attendees at one site where the camera wasn't working.