21ST CENTURY SKILLS

Organization

Note on the Authors

This document was developed through an international consultation process with educators and academics lead by Imagine Education (**http://www.imagineeducation.net**). The paper is deliberately discursive in its current format and works best when used in conjunction with the 21st Century classroom projects. It will be updated with example case studies to illustrate key points in the near future.

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Introduction

The role of the teacher in 21st century education requires new forms of managing and using a range of data. What does this mean for the 'networked teacher'?

For the purposes of this document, organization is the range of practices that individuals and institutions use to represent, to order and to handle the experiences and expertise held within them. The intention of organization approaches is to keep track of ideas, work and objectives to make best use of the 'capital' within the institution and to support individuals in being productive. By findings ways to support both the individual and the institution to implement these knowledge management processes, education organizations can:

- Foster more accurate reflection including highlighting areas suitable for innovations
- Become more connected and 'joined up' across all areas of teaching and learning
- Be more productive
- Develop integrated formative assessment approaches
- Build on individual expertise and highlight areas for development

Within education, knowledge management is also a term used to refer to the professional networks to which practitioners belong, supporting their personal and professional development. Knowledge management processes then relate both to how the organization makes best use of its resources, and also how individuals develop (and keep track of) professional development.

By developing techniques for knowledge management, teachers:

- Keep a clear track of ideas, work and objectives
- Manage multiple sets of data (student assessment, resources etc)
- Link to other educational professionals to find and share resources and knowledge
- Streamline some tasks to free-up time for working with learners

Developing knowledge management approaches with young people, supports their development as independent, autonomous learners. By supporting learners to management their own learning and resources, learners:

- Develop skills of independence and interdependence
- Develop links to experts and resources within and outside of the classroom
- Reflect on their work to inform future practice
- Self manage goals and time
- Are flexible and adapt to change

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Role of digital technologies for assessment

There is a wide range of productivity and management tools available online to support all aspects of knowledge and project management. Many of these tools have been developed to support greater efficiency in the workplace, and for teachers, streamlining administration procedures can lead to a greater amount of time to interact with learners.

Accessing and storing information are central to good knowledge management practices and many web tools, such as Diigo, and Delicious, support users in 'tagging' information (such as websites and online resources). Tagging is the process of labelling information with terms that describe its content, which allows the quicker recall of different information. The social (or networked) element of these tools provides automated ways to share information with colleagues as they can easily find shared resources.

A relatively recent development has been recognising the importance of Personal Learning Networks (PLNs) in supporting all aspects of knowledge management. PLNs take advantage of a range of digital tools (including learning platforms, social software and microblogging sites) to support sharing of resources, practices and information. For further information about PLNs, look at the links in the further resources section.

Role of digital technologies for assessment

There are many tools that support knowledge management for teachers, for example:

- **Gathering, sharing and searching**

With so much information to make sense of, it is useful to be familiar with a range of tools to manage and make sense of data. Microsoft OneNote (**http://office.microsoft.com/en-gb/onenote/HA100325701033.aspx**) is an easy to use tool that enables users to capture, work-with and share all sorts of information and data. **www.twitter.com** is quickly growing as a way for educators to find and share information between institutions and Microsoft's Innovative Teachers Network is an international community of innovative teachers **http://uk.partnersinlearningnetwork.com/Pages/default.aspx**

- **RSS (Really Simple Syndication)**

RSS allows teachers to simply access information from a variety of preferred sources. **http://www.rss-specifications.com/rss-and-education.htm** provides a good overview of the many uses of RSS for teachers, such as professional development and searching, as well as providing links for how to find a good RSS reader and how to find content to subscribe to.

- **Wikis**

Wikis, such as **www.wikispaces.com** enable teachers and learners to create online spaces to share information and ideas and to support collaborative activity amongst users. From setting up class wikis to developing them for your own professional development, wikis are useful tools in knowledge sharing and building. **http://edtechroundup.wikispaces.com/**

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Role of digital technologies for assessment

is an example of a shared space for teachers discussing education and technology.

• Sharing Evidence and Research

Using evidence to inform practice and planning is an important part of the teacher's role. Many sites have been set up to share research and evidence directly with teachers. One such site is **http://www.eep.ac.uk** that presents research within useful themes for educators. **www.wholeeducation.org** is another website that collects examples of innovative practice, aiming to share practices to inform professional development and knowledge sharing.

• Video reflection

Reflective practice is often highlighted as a particularly useful approach to professional development as it enables teachers to review and build upon their own or other's practice. By recording lessons, it is possible to then annotate recordings with comments about positive elements or areas for improvement – as such it's a useful process for student and experience teachers alike. Tools such as **www.bubbleply.com** enable teachers or students to annotate movies to reflect upon their practice. Alternatively, tools such as **www.twitcam.com** can enable you to broadcast your practice for others to observe and comment upon.

Scenarios

Below is a set of scenarios that show a range of practices that use digital technologies to support knowledge sharing. They are not presented as examples of best practice, but to be the starting point for conversations about how schools and teachers can develop their own knowledge management practices.

01 RSS FEEDS FOR ACCESSING WIDER NETWORKS

Setting up an RSS feed to access new information around a specific subject nationally and internationally

Searching for new resources for her class of 16 year old Mathematics students, Mrs Brandon finds a blog written by a Professor of Mathematics Education in Ireland, as well as a blog published by a mathematics teacher in England. Noting that both of these blogs are updated regularly with posts that discuss resources and ideas, she selects the RSS link at the bottom of each blog so that each new post is sent directly to her RSS feed reader which is part of her email inbox. After selecting the feed and entering her details, Mrs Brandon spends just a few minutes each day looking at the new posts when she is also checking her emails. When she reads something useful, Mrs Brandon follows the links from the blog to find new resources to use with her class.

KEY WORDS: RSS, mathematics, CPD, networks

02 LEARNING PLATFORMS FOR SHARING WITHIN INSTITUTIONS

Using a Learning Platform to share and manage resources within a school

Mr Patel uses an online resource bank to develop a set of questions for his French language class. Realising that it might make a useful template for his school colleagues, he uploads it to the school learning platform with a short explanation of what it is along with a list of tags describing what it is. Later, searching on the learning platform for some resources to help teach his English language class, Mr Kite finds the resource and begins to change it to meet his own classes' needs by changing the content and adding some interactive quizzes. He uploads his version and sends an internal message to Mr Patel thanking him for the file and suggests they meet up to look at ways of making the worksheets even more interactive.

KEY WORDS: CPD, Learning Platform, templates

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Scenarios

04 REUSING THE WHEEL

Using existing content that can be altered to be locally relevant

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Miss Djeli wants to develop some resources for a lesson looking at the differences in people's perspectives and opinions as part of a series of lessons looking at similarities and differences. She goes to a teaching resources website and finds a link to a template for a similar activity created for an English secondary school and begins to adapt it so that the language is appropriate for her younger learners and so that the structure of the activity fits her timetable. After a short time, she saves her work, happy that it fits her class' need and that she can begin planning other lessons using similar resources.

KEY WORDS: sharing, networks, adapt, localise

03 SHARING BOOKMARKS

Using social bookmarking to share and access resources across institutions

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Miss Kymatao signs up to a social bookmarking tool so that she can access her favourite websites from computers at school and at home. After signing up, she realises that she can look at other users' links and resources and she begins to search through her tags to see what other resources relate to her work. After findings several resources of use she signs up to two groups, one called 'science teachers' and another called 'science 2.0' both of which are regularly updated with new links to websites and resources. After making her bookmarks available through the two groups, Miss Kymatao finds a link to a science project that has been run for similar aged students to her Year 8 class. Following up the links, Miss Kymatao reads through the resources and beings planning for her own teaching, based on the work from this other school.

KEY WORDS: social bookmarking, tagging, networks, sharing, CPD

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Scenarios

05 STUDENT MANAGEMENT

Using a variety of online tools to manage an ongoing student project

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Every Friday morning, the class continues with its project-based learning activities. In preparation, Miranda reviews her role in the group by checking the groups basecamp site that they are using to manage their work. She sees that they are mostly up to date with their work and that their next task will be to arrange a review session with their teacher. She sends a reminder email to the rest of the group and uses the online calendar to book a meeting with the teacher, a room and an interactive whiteboard so that they can share their project and process so far. She ticks 'invitation' on the task list to signal that they have been sent and she adds to the next project team agenda that they need to prepare for the meeting on the next Friday when they meet up.

KEY WORDS: project based learning, self management, independence

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Professional Development Activity Description

Here are a set of scenario descriptions that outline some possible practices that use digital technologies to support the development of new teaching and learning practices that focus on assessment.

They are not written as predictions nor recommendations, but as a starting point for discussions about how this teaching tool can best be fostered in your teaching practice. Follow the suggested activities that use these scenarios to encourage these conversations.

Activity 1

SOCIAL BOOKMARKING

Visit a social bookmarking site, such as Delicious, Furl, Digg or Diigo and enter search terms for a lesson that you'll be teaching over the next four weeks. For example, you could search the online library for 'science, teaching, cells'. Once the results are returned, look through a number of the different links and see if any of them are helpful. You may wish to add further terms to narrow your results if there are many, or use more general terms if only a few results are returned.

By using a social bookmarking service, you may find new sources of information and resources that you haven't used before. Equally you may find that many of the links you follow are mentioned by a small group of other users which can provide the opportunity to find people with similar interests for professional development.
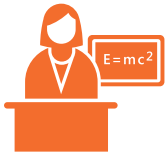
Activity 2

SETTING UP AN RSS FEED AND READER

There are a variety of RSS (Really Simply Syndication) readers that allow new stories and ideas to be sent directly to you, meaning that you don't need to visit websites to find new practices or resources for your teaching. RSS can save time and provide inspiration to try new approaches in your classroom.

Professional Development Activity to set up RSS feed. Should this be based on a particular RSS reader?

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Professional Development Activity Description

Activity 3

EXPLORING ORGANIZATION TOOLS

Review the list of tools set out in the 'Further resources' section. If doing this with a group of teachers/students, give each pair a different tool to review and ask them to create a two minute advert for the tool that they have explored. This fun activity asks the reviewers to be able to describe the tool and its possible use in a very short space of time, whilst presenting reasons for when it would be appropriate to use. As a staff, it is a useful activity for exploring a large number of tools and resources in a short space of time and relating it to school priorities/development plans.

Further Resources

A range of resources are available to support this teaching tool, including teaching resources, advice and research literature.

http://www.iskme.org/

http://futurelab.org.uk/resources/publications-reports-articles/literature-reviews/Literature-Review1398

http://www.thecorner.org/ict/km_reflections.html

http://www.futurelab.org.uk/resources/documents/handbooks/innovation_handbook.pdf

http://faq.globalwatchonline.com/epicentric_portal/site/creative/?mode=0

http://en.wikipedia.org/wiki/RSS

http://www.moodle.com

http://www.sharepoint.com

http://www.learningplatforms.moonfruit.com/

http://www.diigo.com

http://www.edutopia.org/project-learning