



## **The big picture: learning and teaching in today's schools**

### **Having read this chapter you will be able to:**

- refresh your views on the purposes of education
- reflect on current theories of learning in schools
- link your knowledge of learning with web use and information literacy skills
- examine a range of current views on teaching in schools
- identify where you can incorporate ICT into your teaching
- reflect on collaboration between teachers and teacher librarians.

## Introduction

Teachers and teacher librarians in schools across the world are faced with an ever increasing number of initiatives from local and central governments. They are also encouraged to link these initiatives to greater use of ICT in the school. Therefore teachers and teacher librarians are often so busy keeping up with current trends and new technological initiatives that they are in danger of losing sight of the key purposes of education and the key aims of their school. The use of ICT in schools is now often viewed as a *sine qua non* for learning and teaching. Staff are reminded of the cost of ICT developments and it may appear that teachers and teacher librarians must use ICT developments such as interactive whiteboards because they are expensive and therefore that expense must be justified. There is also pressure on teachers and teacher librarians to be seen to be using ICT in their teaching, but this use of ICT can often be superficial, for example when they use an interactive whiteboard merely to replicate what was previously done with a laptop and a projector. Thus the way in which ICT can be used to meet the school's aims and promote better learning and teaching in the school should be emphasized.

In most schools teaching students how to use the web has moved on from isolated classes in a computer lab where students were taught the technical aspects of using Google, how to bookmark sites, and how to cut and paste information. One of the problems schools often face, however, is that although students now use the web for all mainstream subjects, there is often no systematic approach to teaching web use. Teacher librarians in schools may attempt to teach information literacy skills, including web use, but there are only sporadic instances of teachers either developing or reinforcing these skills.

Web use and information literacy skills should be part of each student's learning and the focus in schools should be on how students can use information literacy skills to enhance their learning. Learning from e-resources is the key educational factor here, not the student's increased use of the web. Teachers and teacher librarians who reflect on how effectively their students learn, and not just on what the students learn, and who also reflect on their own teaching, will be making a greater contribution to the overall aim of the school: to educate students.

This chapter will briefly outline the purposes of schools in the 21st century; review current theories of learning, learning styles and ICT and learning; and examine theories of and approaches to teaching in schools, including styles of teaching and using ICT in teaching.

## The purposes of education and schools

In most countries there is an acceptance that the education of children is a valued aspect of society. Formal education is carried out in schools and informal education takes place in society as a whole. Examining the purposes of education and schools can provide teachers and teacher librarians with a big picture view of their roles in schools and can provide a context for what they do in schools. Ryan and Cooper argue that there is a wide range of views on the purposes of education, and define education as 'a process of human growth by which one gains greater understanding and control over oneself and one's world' (2010, 31). They compare education with schooling and argue that education is something which happens before and after people attend school. The purposes of education may be seen as encouraging people to relate well to others, to understand their society and to engage in formal or informal lifelong learning.

The purposes of schools can be seen as being narrower than the purposes of education, for three reasons. First, schools deal with students over a particular period of time, whereas education takes place during a person's whole life. Second, schools engage students when they are young – usually around age 5 to 18 – and still developing physically and intellectually. Third, education is compulsory in all countries, although economics dictate that some children may be prevented from attending school in some societies. Post school education is voluntary and informal education takes place over a lifetime for most people.

What then are the key purposes of schools? Ryan and Cooper identify four:

- ◆ 'intellectual purposes' – producing students who can undertake academically challenging work
- ◆ 'political and civic purposes' – producing students who will take an interest in society when they leave school and be active citizens
- ◆ 'economic purposes' – developing students as the future workforce in their society and who will increase society's overall wealth
- ◆ 'social purposes' – teaching students to develop socially acceptable habits, such as respect for others' opinions, good behaviour, cooperation such as sharing ideas, and concern for others' wellbeing (2010, 38–42).

Spence speaks of 'the physical, social, emotional, academic and cultural

needs of our students' (2009, 55). In the context of teachers and teacher librarians developing students who are effective users of information literacy skills, it is clear that teaching these skills can improve students' academic work, extend their knowledge of active citizenship, prepare them for the workplace, where effective information practices are increasingly important, and encourage good social habits in areas such as sharing websites or social networking etiquette. Identifying how information literacy skills, including web use, fit into the overall purposes of the school can enable teachers and teacher librarians to meet wider aims, for example encouraging students to apply their information literacy skills to all subjects, and from school to work.

### **Learning theories**

There is a vast literature on learning in schools and many definitions of learning. Pritchard includes the following as good examples of the definitions of learning:

- ◆ a change in behaviour as a result of experience or practice
- ◆ knowledge gained through study
- ◆ gaining knowledge of, or skill in, something through study, teaching, instruction or experience
- ◆ the individual process of constructing understanding based on experience from a wide range of sources (2009, 2).

There is no one agreed definition of learning and it is important to recognize that learning is a complex concept and practice. However, thinking about what learning might be and how it might be best encouraged in the classroom or school library is important for teachers and teacher librarians, as developing students as effective learners is a key purpose of school education.

### **Behaviourism**

Learning theories can be broadly grouped into behaviourism and constructivism. James states that behaviourism is 'mostly concerned with behaviour, not what goes on in a person's head' (2007, 17), and that

behaviourism focuses on providing rewards to students, separating parts of complex ideas and skills into small sections, and that students should be asked to focus on basic skills, often through rote learning. Behaviourism views students as receivers of knowledge from the teacher and it views knowledge – what students can learn – as being something which is accessed externally by students, and not constructed by them. This approach to learning is based on stimuli, which can be positive (rewarding students for learning well) or negative (withholding rewards from or punishing students who do not learn well).

Examples of behavioural approaches in schools are when students are told to learn arithmetical tables or remember formulae by rote. Examples of behavioural approaches being used when teaching information literacy skills are students being asked to try to remember Dewey classification numbers or to write down explanations of an information literacy model. The intention is to help students but it is unlikely that students will be motivated to learn in this way. The same applies to web use by students. Although students may learn how to use the web in a mechanical way through behaviourist approaches (for example being given a list of rules to follow when accessing websites), students are not likely to become effective web users when taught in this way. In general, behavioural approaches in education are now seen as outdated.

### ***Constructivism***

Although there are many forms of constructivism in learning theories, social constructivism takes the view that learners are not merely receptacles of knowledge passed on by a teacher, but are conscious constructors of knowledge. This is a major difference between behaviourism and constructivism. Pritchard argues that 'In the context of constructivist theory, learning is an active, not a passive activity' (2009, 29). The key aspects of constructivist learning are that:

- ◆ prior learning is a key factor as students construct new knowledge from what they know already
- ◆ students will (if encouraged) make connections between areas of knowledge and reflect on them
- ◆ the social context of students' learning is important in influencing how students learn

- ◆ learning is very personal and students who are effective learners will be able to reflect on their own learning.

If we are to encourage our students to be reflective users of information literacy skills, including using the web, then it is important that teachers and teacher librarians take a social constructivist approach to learning. If we view students as constructing their own knowledge and building on prior knowledge, then this will have an influence on how students will be encouraged to use information literacy skills. Thus getting students to reflect on an information literacy skills model, such as this author's PLUS (Purpose, Location, Use and Self-evaluation) model (Herring, 2004), can encourage students to think about what their own individual model of learning might be.

Learning theories, in the context of the development of information literacy skills in schools, should not be seen as abstract concepts, but as the basis on which teachers and teacher librarians design and develop opportunities for students to learn to be effective learners.

## **Teaching in schools**

One of the key ways in which the purposes of schools, as discussed above, can be met is through quality teaching in schools. Just as students need to be effective learners, teachers and teacher librarians need to be effective teachers. This applies not only to parts of the world such as North America and Australia, where most schools have teacher librarians who are qualified teachers, but also in areas such as the UK and New Zealand, where school librarians do not normally have a teaching qualification. This section seeks to refresh the thinking of teachers, teacher librarians and school librarians on the key aspects of teaching, particularly in relation to teaching information literacy.

### ***What makes a good teacher?***

Capel and Leask (2005) state that there are fundamental aspects of teaching which apply to all teachers, but also that different teachers often have individual approaches. The question might be asked – what makes a good teacher? They argue that a good teacher is one whose 'job is first and foremost to ensure that pupils learn' (2005, 8). These authors state that good teachers effectively carry out a range of duties including:

- ◆ subject teaching
- ◆ lesson preparation
- ◆ setting and marking of homework
- ◆ assessing pupil progress in a variety of ways
- ◆ writing reports
- ◆ recording achievement
- ◆ working as part of a subject team
- ◆ curriculum development and planning
- ◆ keeping up to date (often through work with the subject association)
- ◆ implementing school policies
- ◆ extracurricular activities (13).

There is no one definition of a good teacher, but in general good teachers are knowledgeable about their subject, interested in it, collaborative members of staff, well organized, and adaptable to new school policies and new technology, and have a sound understanding of students' needs.

### ***What do teachers do?***

Killen identifies a number of steps that effective teachers take in order to focus their teaching on student learning, and states that the first step is 'to describe what it is you want your students to understand' (2007, 13). This is more difficult than it might appear as the teacher or teacher librarian needs to be able to express themselves in a way that all students will understand. For example, if a teacher or teacher librarian is attempting to get students to understand the importance of planning an assignment, then they will explain this more than once, first in general terms that most students except possibly the less able ones will understand, then second in more specific terms so that the less able students will also understand. Effective teachers and teacher librarians will also check that students understand what they have said by asking questions.

Killen's second step is 'selecting content (or teaching topics) that will be a suitable vehicle for helping students gain the understanding that is described in your learning outcomes' (2007, 14). According to Killen the content selected by the teacher or teacher librarian should be of direct interest to students, and of a nature that can be explored through questions and studied in different ways, perhaps by students carrying out a range of

activities. It should provide students with the opportunity to link with prior knowledge and relate to other areas of learning. Thus teaching students about assignment planning might involve gaining students' interest in the assignment, posing questions to them about what assignment planning is, and asking them to work in groups to brainstorm the subject and then write down their previous experience of doing assignments.

The third step Killen identified is to develop a suitable learning environment in which students will feel engaged in learning. This involves creating an atmosphere in which students will willingly reflect on their prior learning and discuss a range of aspects of the topic. In group work for assignment planning, for example, the teacher or teacher librarian might ask each group to draw up a concept map of assignment planning and use it to advise the other groups of what effective assignment planning might be. The fourth step is 'to give students opportunities to publicly demonstrate their developing understanding' (Killen, 15). This enables students to apply what they have learned, for example by drawing an individual concept map of a selected topic, and the teacher or teacher librarian to judge the students' levels of understanding, and take action where necessary.

Lesson planning is an important aspect of what teachers do as effective lesson planning is a prerequisite to successful teaching in the classroom or in the library. Butt (2006) outlines the key aspects of lesson planning as identifying the learning objectives of the lesson, planning the lesson effectively, choosing an appropriate approach, choosing appropriate techniques, and creating a suitable learning environment. He also provides examples of lesson plan templates. At its simplest this would be a list giving the time of the lesson, the group being taught, the aims and objectives of the lesson, the resources needed to teach it, the activities to be undertaken, and evaluation methods. Figure 1.1 shows a template for a more detailed lesson plan.

The key difference between the simple lesson plan and the more complex plan shown in Figure 1.1 is that the second plan provides scope for identifying much more detailed planning and reflection on the part of the teacher or teacher librarian taking the lesson.

Figure 1.2 shows an example of a lesson plan for a year 9 geography class, in which the teacher focuses on aspects of information literacy linked to the subject being taught. Incorporating information literacy skills into the curriculum is a very effective and meaningful way of introducing students to these skills.

| Date  | Lesson | Time                                       | Class                       | Room |
|---|--------|--|-----------------------------|------|
| Title of lesson                                   |        |  |                             |      |
| Lesson's aims                                     |        |  |                             |      |
| Learning objectives and enquiry questions         |        |  |                             |      |
| Subject content:                                  |        | Cross curricular links/themes/competencies |                             |      |
| National Curriculum/syllabus links                |        |  |                             |      |
| Resources   |        | Advanced preparation (room and equipment)  |                             |      |
| Differentiation                                   |        | Action points                              |                             |      |
| Learning activities/tasks                         |        | Time                                       | Teaching strategies/actions |      |
|   |        |  |                             |      |
| Assessment opportunities, objectives and evidence |        |  |                             |      |
| Evaluation of learning                            |        | Evaluation of teaching                     |                             |      |
|   |        |  |                             |      |
| Action points                                     |        |  |                             |      |
|   |        |  |                             |      |

**Figure 1.1** Lesson plan template (Butt, 2006, 29)

## Incorporating the web into teaching

Teachers and teacher librarians can use the web in their teaching for a range of purposes. First, the web is a source of resources for personal staff development so teachers can extend their subject knowledge by finding websites or articles on the web. For example, an Australian geography teacher might use the Aussie Educator site ([www.aussieeducator.org.au](http://www.aussieeducator.org.au)) to update her knowledge about volcanoes. In the UK, a geography teacher might use

| <b>Year 9 Geography –Information Literacy Activity</b> |   |                           |  |
|--|---|---------------------------|--|
| <b>Title</b>   | Investigating Australia's Physical Environments - Natural Hazards (Floods) – Lesson 1 of 2  |                           |  |
| <b>Overview</b>  | This is the first in a series of two lesson's incorporating an information literacy activity. The focus is on Investigating Australia's Physical Environments', in particular Natural Hazards. In this lesson, students will gain an understanding of what conditions are needed to cause a flood.  |                           |  |
| <b>Topic</b>   | Investigating Australia's Physical Environments   |                           |  |
| <b>KLA</b>   | Human Society and its Environment   | <b>Subject</b>            | Geography  |
| <b>Year</b>  | 9   | <b>Stage</b>              | 5A1  |
| <b>Learning Outcomes</b>                               | <p><b>5.1</b> Identifies, gathers and evaluates geographical information</p> <p><b>5.2</b> Analyses, organises and synthesises geographical information</p> <p><b>5.3</b> Selects and uses appropriate written, oral and graphic forms to communicate geographical information</p> <p><b>5.4</b> Selects and applies appropriate geographical tools</p> <p><b>5.6</b> Explains the geographical processes that form and transform Australian environments</p> |                           |  |
| <b>Students Learn About:</b>                           | <ul style="list-style-type: none"> <li>• the nature of the natural hazard in Australia</li> <li>• the geographical processes involved</li> <li>• the impacts of the natural hazard:               <ul style="list-style-type: none"> <li>– economic</li> <li>– environmental</li> <li>– social</li> </ul> </li> </ul>   | <b>Students Learn To:</b> | <ul style="list-style-type: none"> <li>• describe the geographical processes associated with the natural hazard</li> <li>• describe the economic, environmental and social impacts of the natural hazard in Australia</li> </ul> |
| <b>Duration</b>  | 100 minutes   |                           |  |
| <b>Teacher Prep time</b>                               | 45 minutes  |                           |  |
| <b>Materials required</b>                              | <ul style="list-style-type: none"> <li>• Computers (Internet Access)</li> <li>• Maps</li> <li>• Photographs</li> <li>• Virtual Worksheet (Attachment 2)</li> </ul>  |                           |  |
| <b>Procedure</b>                                       |   |                           |  |

**Figure 1.2** Example of a lesson plan for a year 9 geography class focusing on information literacy; this lesson plan is an example for student teachers at Southern Cross University Australia ([www.scu.edu.au/library/download.php?doc\\_id=5553&site\\_id=40](http://www.scu.edu.au/library/download.php?doc_id=5553&site_id=40)).

|                               |   |
|-------------------------------|---|
|                               | <p>1. A session must be pre-booked for a class space in a computer lab, or library computers</p> <p>2. Teacher sends an email (Attachment 1) to all students in the class at the beginning of the lesson, outlining instructions and providing links to WebPages.</p> <p>3. Attached to the email will be a "virtual worksheet" (Attachment 2) that students will complete and email back to the teacher before the start of next lesson.</p> <p>4. Teacher will assist students with any queries that arise throughout the lesson, and keep students on task by monitoring progress.</p> |
| <b>Homework:</b>              | <ul style="list-style-type: none"> <li>• Students asked to complete the virtual worksheet as homework, if not done by the end of class</li> </ul>   |
| <b>Suggested assessment::</b> |   |
| <b>Attachments</b>            | <ul style="list-style-type: none"> <li>• Virtual Worksheet</li> <li>• Instruction Email</li> </ul>  |
| <b>Evaluation</b>             |   |
| <b>Author</b>                 | ML  |
| <b>Creation Date</b>          | 06/05/09  |

**Figure 1.2** (Continued)

the Intute site ([www.intute.ac.uk/](http://www.intute.ac.uk/)) to increase her knowledge of population statistics, while a colleague in north America might use the extensive US Geological Survey site (<http://education.usgs.gov>) to find topical information on climate change. Similarly, teacher librarians may use the Resources for School Librarians site ([www.sldirectory.com](http://www.sldirectory.com)) for examples of information literacy teaching.

Second, the web can be a resource for teachers to plan activities for students in the classroom. They can avoid reinventing the wheel by searching for sites that will engage their students in meaningful activities. Wetzel

focused on science teaching and the web and stated that students 'can explore science topics . . . in greater depth and more interactive ways – with, for instance, simulations, online projects and problem solving' (2005, 2). An example of activities provided by Wetzel is the Aerospace Lesson Plans site (<http://quest.nasa.gov/aero/teachers/learning.html>), where activities for all grades of students can be found and used by science teachers.

Third, the web can be used as a resource which provides students with mediated sites, which have been vetted by the teacher and, in many cases, the teacher librarian in a particular school. The value of this kind of mediation is that sites are selected for particular local purposes and to suit the learning needs of particular groups of students. As will be seen in Chapter 3, this kind of selection depends on teachers and teacher librarians being effective searchers of the web. For example, secondary or high school teachers seeking information for students on the abolition of slavery will increase the effectiveness of their search by including the term 'high school' in their search strategy, as this will produce results that include material specifically for high school students.

Wetzel (2005, 3) argues that using the web in science teaching benefits students and 'web based technology opens doors' by:

- ◆ providing equal access to information
- ◆ encouraging students to be active learners
- ◆ boosting students' motivation to learn
- ◆ supporting teachers' efforts to practise inquiry-based teaching and learning.

The first point is very important in schools across the world as, even in the so called 'developed' countries, many school students only have access to the web in school. Thus by providing equal access to all students, teachers and teacher librarians ensure a level playing field within the school. Active learning by students, with effective facilitation by teachers and teacher librarians, for example on the evaluation of web resources, has been shown to encourage students to learn more effectively. Students can be motivated by using web resources, but this will not happen automatically. Teacher librarians in particular will know that students who are left to search aimlessly in the library are likely to be less motivated to learn. However, if the use of the web is built into well structured lessons, which encourage students to question what they read and relate what they

find on the web to prior learning in the classroom, then motivation is likely to be high.

Effective teachers and teacher librarians set appropriate challenges for students using the web, according to the abilities and learning styles of students. Wetzel (2004) claims that inquiry based teaching is the key to successful science education and this author would argue that it is one of the key elements in all school subjects. To be successful practitioners of inquiry based teaching, teachers and teacher librarians need to collaborate to ensure that their students have the requisite information literacy skills, abilities and techniques to use web resources effectively. Chapter 6 focuses on methods of teaching students these skills.

### **Collaboration between teachers and teacher librarians**

One of the keys to successful teaching, particularly in relation to information literacy and students' use of the web, is for teachers and teacher librarians to collaborate. Montiel-Overall (2008) and Gibson-Langford (2007) identify a range of areas where teachers and teacher librarians can cooperate and collaborate. Both authors argue that cooperation between teachers and teacher librarians, for example where teacher librarians provides resources for the classroom, is much less effective than collaboration. Collaboration implies a sharing of knowledge between two professionals, for example the teacher's subject knowledge and the teacher librarian's knowledge of information literacy. When knowledge is shared, lessons or programmes can be jointly planned, with mutual understanding and a common terminology. It is very important to have a common terminology when teaching information literacy and web use to students. Thus, when teacher librarians introduce students to aspects of information literacy such as concept mapping or search strategy formulation, students are more likely to implement the skills they have been taught if teachers reinforce them in the classroom by using the same terms as those used by the teacher librarian. Examples of this type of collaboration will be given in Chapters 6–9.

### **Conclusion**

Learning and teaching is the main basis for activities in schools and developing information literate students to be effective web users depends

on schools having a clear focus on what students learn, how they learn, and what teaching strategies will be most effective. The challenge for teachers and teacher librarians is to create learning environments in the classroom and school library where students have access to relevant resources and learning scaffolds. This will enable students to use their information literacy skills and make effective use of the web in order to increase their learning.

## References

- Butt, G. (2006) *Lesson Planning*, 2nd edn, Continuum International.
- Capel, S., Leask, M. and Turner, T. (1996) *Learning to Teach in the Secondary School: a companion to school experience*, Routledge.
- Gibson-Langford, L. (2007) Collaboration: force or forced? Part 2, *Scan*, 27 (1), 31-7.
- Herring, J. (2004) *The Internet and Information Skills: a guide for teachers and school librarians*, Facet Publishing.
- James, M. (2007) *Improving Learning How to Learn: classrooms, schools and networks*, Routledge.
- Killen, R. (2007) *Effective Teaching Strategies: lessons from research and practice*, 4th edn, Thomson Social Science Press.
- Montiel-Overall, P. (2008) A Qualitative Study of Teacher and Librarian Collaboration, *Scan*, 27 (3), 25-31.
- Pritchard, A. (2009) *Ways of Learning: learning theories and learning styles in the classroom*, 2nd edn, Routledge.
- Ryan, K. and Cooper, J. (2010) *Those Who Can, Teach*, Wadsworth Cengage Learning.
- Spence, C. (2009) *Leading with Passion and Purpose*, Pembroke Publishers.
- Wetzel, D. (2005) *How to Weave the Web into K-8 Science*, vol. 2004, NSTA Press.