

ASSESSING ICT CAPABILITY

The Importance of Assessment

Assessment is closely linked to forward planning and so if you intend to plan for the [progression of ICT capability](#) with students, it is vital that you have an appreciation of where the children are, where they ought to be and where they might be heading next.

In order to help your students develop their ICT capability begin by determining their starting point followed by accurate directions that will enable them to plot a course for success.

The [assessment of ICT capability is vital](#) as it will allow you to track progress and to plan appropriately for students to achieve their capabilities. Proper assessment will provide you with real evidence and knowledge of where the students are up to. Without it any planning conducted would be worthless.

The Australasian Curriculum, Assessment and Certification Authorities (2017) principles of assessment include the following:

- The main purpose assessment is to inform teaching and improve learning;
- Assessment is underpinned by equity principles. It takes account of the diverse needs of students and contexts of education;
- Assessment is aligned with curriculum, pedagogy and reporting. Quality assessment has curricular and instructional validity – what is taught informs what is assessed, and what is assessed informs what is reported;
- Assessment alignment with curriculum, peda-



- gogy and reporting includes assessment of deep knowledge of core concepts within and across the disciplines, problem-solving, collaboration, analysis, synthesis and critical thinking;
- Assessment involves collecting evidence of expected learning as the basis of judgements about the achieved quality of that learning. Quality is judged with reference to fixed standards and is based on evidence;
 - Assessment evidence may come from a range of assessment activities. The assessment activity is selected because of its relevance to the knowledge, skills and understanding to be assessed, and the purpose of the assessment;
 - Information collected through assessment activities is sufficient and suitable to enable defensible judgements to be made. To show the depth and breadth of the student learning, evidence of the student learning is compiled over time. Standards are reviewed periodically and adjusted according to evidence to facilitate continuous improvement;
 - Approaches to assessment are consistent with and responsive to local and jurisdictional policies, priorities and contexts. It is important that schools have the freedom and support to develop quality assessment practices and programs that suit their particular circumstances and those of the students they are assessing;

- Assessment practices and reporting are transparent. It is important that there is professional and public confidence in the processes used, the information obtained and decisions made.

General Capabilities – What are your teacher responsibilities?

In the Australian Curriculum, General Capabilities are embedded and addressed throughout the content of the Learning Areas. They are 21st century skills required by students in order for them to live and work successfully in their future endeavours.

If you teach the Australian Curriculum, you are required to teach and [assess general capabilities](#) “to the extent that they are incorporated within Learning Area content” (Australian Curriculum, 2017).

ICT Capability – The Perspective of the Australian Curriculum

ICT capability as a General Capability is recognised as a necessity for students to “participate in a knowledge-based economy” (ACARA, 2017). Today, knowledge work has just not become another sector but a “cross-sectional drive, a main carrier, and a cutting edge for contemporary economic activities” (Semenov, 2005). It has been well documented that industries, organisations, professional and business occupations are already calling for knowledge-based and skilful intellectual work. Students therefore need to be empowered within an ICT-dominated society by being proficient users of ICT and using ICT fluently in any occupation they pursue.

Throughout the Learning Areas, students will develop ICT capability when:

- [Learn to use ICT effectively and appropriately](#) to access, create and communicate information and ideas;
- Solve problems and work collaboratively in all Learning Areas at school and in their lives;
- They make the most of the digital technologies available to them, adapting new ways of doing things as technologies evolve and limiting the risks to themselves and others;
- They use ICT for tasks associated with information access and management, information creation and presentation, problem-solving, decision-making, communication, creative expression and empirical reasoning.



Figure 1. Being an ICT capable teacher aides in the assessing of student ICT capability.

In what context can ICT Capability be assessed?

Teachers are provided with ample opportunity to teach and [assess ICT capability](#) as it supports and enhances all student Learning Areas across the curriculum. According to the Australian Curriculum throughout this process students will “develop and apply ICT knowledge, skills, investigate, create and communicate, as well as developing their ability to manage and operate ICT” (ACARA, 2017).

In the Primary Curriculum, ICT capability can be found but not limited to the following Learning Areas.

- Technologies: Digital Technologies – Develop and understand the characteristics of data, digital systems, audiences, procedures and computational thinking;
- The Arts: Engage with digital and virtual technologies when making and responding to artworks;
- Humanities and Social Science: Learn to build discipline specific knowledge about history and geography;
- Mathematics: Investigate, create and communicate mathematical ideas and concepts using fast, automated multimodal technologies;
- English: Interpret and create print, visual and multimodal texts. Use communication technologies when conduct research online;
- Science: Research science concepts and applications, investigate scientific phenomena and communicate their scientific understandings. ICT capability is developed then they access information, collect, analyse and represent data;
- Health and Physical Education: Effectively and safely access online health and physical activity information and services to manage their own health and well-being.

ICT capability development can be facilitated in any context of the curriculum. However, in this document I am referring mainly to those apart from the Technologies curriculum.

How do I Plan for the Assessment of ICT Capability?

Assessments should always be planned and must be done so when planning your teaching. Ensure that you [have clear outcomes established in you teaching plans](#). For example, what are you going to teach and what is going to be assessed? Another method is to break your learning objectives down into categories (Stanley & Tanner, 2003). By using the ‘SACK’ classification (Skills, Attitudes, Concepts, Knowledge) you can refine it to include the specific structure for the components of ICT capability. For example, Stanley and Tanner (2003, p117) provide the example of a PowerPoint activity, where the outcomes might look as followed:

- Can open the PowerPoint program (Technique or Routine – Skill);
- Can work in pairs to produce a joint presentation (Process – Attitude);
- Can understand why the amount of text on a PowerPoint slide should be limited (Concept);
- Knows that PowerPoint is a presentation package (Terminology – Knowledge);
- Knows that presentation packages are used in commercial organisations (Fact – Knowledge).

The ‘SACK’ method is an ideal way for you to ensure that you don’t just focus on one particular aspect of their ICT capability, mainly techniques and routines. Otherwise, your lessons will focus on low level skill development (new techniques and automatization of familiar ones) which will “constrain the students from undertaking higher order skill development and won’t be stretch the ability of your more able students” (Stanley & Tanner, 2003, p. 118).

What are my own ICT needs?

It is vital to understand that there are significant links between the level of ICT capability that you may have and the development of ICT capability of students. Research (Kennewell, Parkinson, & Tanner, 2000) conducted to [determine how ICT would support literacy and numeracy](#) found that the effectiveness depended to a large extent on the teacher's own personal ICT capability. Observations indicated that where the teacher's knowledge and confidence in ICT were low there was often haphazard development of ICT skills. On the other hand, those who were confident about their ICT capabilities were the ones who were willing to allow students to experiment and help them progress further in their capabilities.

Despite this, there are ways of overcoming limitations in the ICT capability of teachers. According to the (UNESCO, 2017), a technically competent teacher is able to:

- Operate computers and use basic software for word processing, spreadsheets, email, etc.;
- Evaluate and use computers and related ICT tools for instruction;
- [*Apply current instructional principles, research, and appropriate assessment practices to the use of ICTs;*](#)
- Evaluate educational software;
- Create effective computer-based presentations;
- Search the Internet for resources;
- Integrate ICT tools into student activities across the curriculum;
- Create multimedia content to support instruction;
- Create hypertext documents to support instruction;
- Demonstrate knowledge of ethics and equity issues related to technology and;
- Keep up-to-date as far as educational technology is concerned.

As it can be seen above, the skill that mainly applies here is the third that emphasises the use of “appropriate assessment practices to ICTs”. However, we can also add the first point as it relates directly to the teacher's knowledge of the resources.

It is impossible to know everything there is to know about software and hardware as there is so much of it. Yet if you don't have to know everything. As with [student ICT capability](#) it is not just about acquiring skills but to do mainly with your ability to decide whether the ICT technique is appropriate. For this reason, it is often best never to give students the impression that you do and so you will be able to feel more comfortable knowing that you are a learner just like them.

Start by becoming familiar with one software and learning how to exploit it in the lesson. For example, in order to teach word processing skills effectively and efficiently ensure that you know the following techniques:

- Creating, opening, saving, closing, deleting and printing documents;
- Selecting font, font size, colour, style (italic, bold), line spacing and justification;
- Inserting, deleting, selecting, cutting, copying, pasting and undoing;
- Utilising help; inserting bullet points, tables, clip art, borders, shading and columns;
- Altering page orientation (landscape, portrait), background colour, page size and margins;
- Forcing page breaks;

- Utilising tabs and indents;
- Utilising spelling- and grammar-checkers (including how to switch on and off), thesaurus, print preview, highlighter and talking facilities (including how to switch on and off) and find and replace;
- Connecting alternative input devices (overlay keyboards, touch screens);
- Constructing and utilising on-screen word banks;
- Inserting page numbers;
- Inserting text, graphics, tables and documents from other applications.

Becoming familiar with a program will allow you to identify when the students are ready to move onto a new technique, feature or to use the software for a more demanding purpose. In terms of [assessing ICT capability](#) it simply means that you have the ability to determine if a student has learnt a technique effectively by using it for the right reasons. It also means “reflecting on the processes it helps a student to carry out and the techniques with which particular effects can be achieved” (Kennewell, Parkinson, & Tanner, 2000).

It is far more beneficial for students if you are to become knowledgeable about one program than to have acquaintances with a large number. Don't fear that this may limit their capabilities as it is better for them to progressively develop their skills with a small number of versatile programs. Develop their confidence through carefully structured activities.



Figure 2 The opportunities are endless when it comes to assessing ICT capability..jpg

Assessing existing capabilities: How do I determine a starting point?

Being able to determine the starting point of a student's ICT capability is vital if you are to plan effectively for progression. Already we have discussed how planning and assessment are closely linked. When a new student comes into the classroom like literacy and numeracy their [existing ICT capability needs](#) to be determined. However, unlike other areas this may not be as straightforward as students rarely have a complete understanding but instead a series of connected ideas (Beauchamp, ICT in Cross Curricular Teaching, 2012).

As with pre-teaching assessment in Science (Summers et al., 1998 as cited in Beauchamp, 2012) a useful framework can be equally applied. When trying to establish an existing understanding with students you

could look for:

- Preconceptions – either a misconception, that is, a technical incorrect idea, or a partially understood technical idea;
- Missing – a technical idea for which there was no evidence of any knowledge or understanding;
- Knows – a technical idea of which the child demonstrated knowledge and understanding.
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An idea would be to use a range of [practical activities](#) with no ICT and identify the level of the student's understanding using questioning, written tests or practical tasks. In addition, you may also be able to decide the level of capability through class discussion.

What is the desired destination?

Now that you know what to assess it is just as important to understand what exactly you are hoping to achieve. In other words, what is the desired result? With many occupations now calling for knowledge workers who are fluent in the use of ICT your aim therefore needs to be that. There are many terms that can be used to describe this – digital literate, [ICT literate](#), computer literate, technology literate or ICT capable. The term which is most appropriate for yourself is entirely up to you. However, ICT capability is the general capability in the national curriculum and therefore, for this purpose your aim needs to be that your students are ICT capable. Regardless of which term you prefer to use they are all consistent with being associated with lifelong learning and contain values that strongly facilitate higher order skills.

Having links to lifelong learning, however, means that a person can never be fully ICT capable as learning and re-learning are implicitly coupled with ICT capability. Despite this, research (Crawford, 2011, pp. 6-7) has indicated that ICT capable students can be identified. For example, students found with high levels of ICT capability could:

- Use ICT to support their learning in all subjects;
- Use common ICT tools;
- Take responsibility for their own learning, develop strategies to help them learn how to use unfamiliar ICT tools and work collaboratively;
- Use current ICT hardware and software and understand its potential and limitations and;
- Understand that using ICT affects social processes.

What this proves is that students must have an [understanding of the ICT potential of situations](#). They must be able to use ICT appropriately in learning, in their careers and everyday life. Students need to be able to solve increasingly sophisticated and abstract problems, construct an increasingly rich and viable conceptual framework with a developing sense in the use of a widening range of techniques (Kennewell et al., 2000).

ICT capability involves not only having technical knowledge and skills of a wide range of techniques and devices but also being aware of this knowledge base in order to make effective choices. These choices that students make is dependent on the “knowledge that has been acquired and on one's awareness of that knowledge and realisation that its use would be appropriate” (Kennewell et al., 2000, p39). It is crucial that they have been given the opportunity to develop the knowledge of the power and limitations of software and hardware systems together with a prediction to seek ICT solutions to situations.

Students who are ICT capable should be able to confront new software with a positive attitude and a willingness to explore. As indicated earlier, high level ICT capability involves students being able to use concepts they have learnt from their experiences with other software and applying them in different contexts and with different software. In fact, ICT capable students would expect to be able to explore new systems in this way with little or no assistance from manuals or instructors.

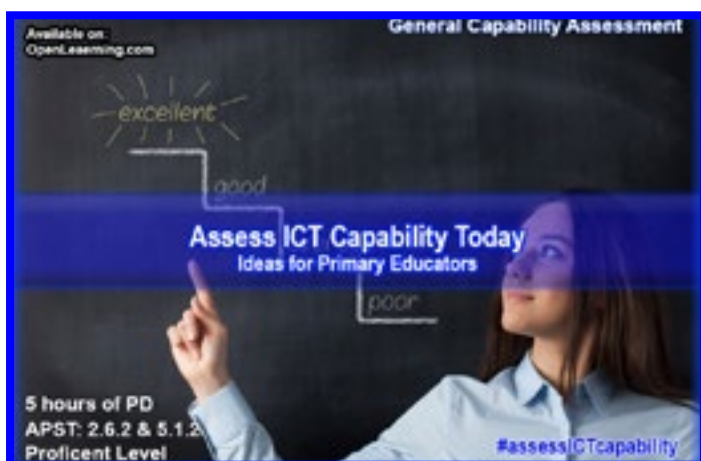
In summary, to be ICT capable then is to have the “disposition to [construct ICT solutions to problems](#) which are appropriate to the context and are based on knowledge of the opportunities and limitations offered by the systems available” (Kennewell et al., 2000, p. 39). For you as a teacher, the issue then is not whether a student knows an ICT technique or skill, it is whether they know that they know it and are thus able to decide to use it.

Conclusion

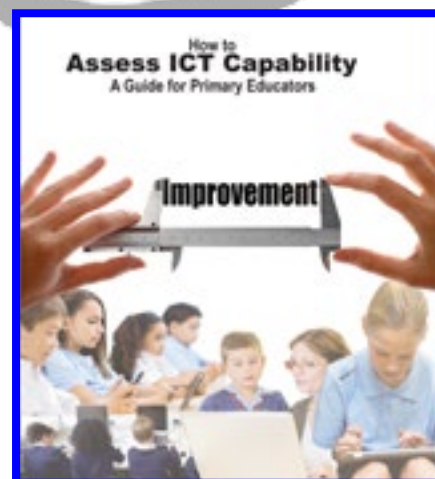
The purpose of the information included in this eBook was to assist primary educators in making the right decisions about the methods they used to [assess the ICT capability](#) of students in their classroom. It aligns itself with the requirements of the National curriculum in that it enables teachers to fulfil the expectation placed upon them in relation to being able to assess the general capability throughout the various Learning Areas. In addition, it has provided teachers with the knowledge they need to be able to apply current instructional principles, research, and appropriate assessment practices to the use of ICT (UNESCO, 2017).

Teacher observation is the most proficient way to assess [student's ICT capability](#) in the classroom. However, without teachers acquiring and developing their own knowledge of the ICT tools and resources or in other words, improving their own ICT capability, such methodology would be considered useless as there would be no strong foundations of ICT knowledge and capability to support the progression of students in their learning.

Record keeping needs to be used wisely in a supportive role to provide strong evidence of student progression. It is vital that is conducted in a professional and proficient manner that you can accurately record progress in a timely way. These capabilities recorded can also be used to determine the position of a student in relation to their progress in capabilities as recognised by the ICT Capability Learning Continuum.



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