THE PERFECT

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ICT LESSON

Every

@ICTEvangelist

Mark Anderson
Edited by Jackie Beere

Praise for *Perfect ICT Every Lesson*

Mark Anderson has a well-deserved reputation for his knowledge and enthusiasm for ICT in schools. He has a superb understanding of how ICT can enhance and even transform learning; it's not about innovation for the sake of it or lots of flashy gimmicks. *Perfect ICT Every Lesson* provides an excellent framework for using ICT at a whole-school or classroom level, as well as giving teachers ideas for a range of different strategies and applications. Mark has a gift for making things seem possible. Reading this book will give teachers the confidence to try out some new approaches without worrying that they're not ICT experts. It's an intelligent book, which many teachers will find useful and inspiring.

Tom Sherrington @headguruteacher, Head Teacher, King Edward VI Grammar School, Chelmsford

Perfect ICT Every Lesson seeks to remove the fear some educators have when using ICT to enhance learning. The book dispels the myth that embracing technology in the classroom takes hours of discovery and days of practice before it is exposed to learners. Mark Anderson skilfully discusses techniques and tools whilst maintaining interest in the possibilities that are available to all. The developing pedagogy is outlined to the reader with relevant case studies and examples. There is real craft in the way the learning process is discussed with reference to a tool that should only be used where it is appropriate. Mark successfully informs and relaxes the reader in equal measure. Simple explanation scaffolds the

wealth of experience that Mark possesses and it is testament to the author that we are eager to find out more about each suggestion.

I would highly recommend *Perfect ICT Every Lesson* to all educators seeking to continue their own development and enhance learning for their students. This book will sit on top of the reference list when it comes to improving my own methods and I'm thankful it has come along at this stage in my career.

Daniel Edwards @syded06, Director of Digital Strategy, Stephen Perse Foundation

In this book, Mark provides us with an exceptionally clear and dynamic vision; full of fantastic strategies, case studies, 'top tips' and suggestions on how to use ICT to transform learning in and out of the classroom. For someone who considers themselves tech-savvy, I still found it packed full of 'Well, I didn't know that' information which had my brain whirring with new possibilities for my own teaching and my school's approach to using technology as a platform for providing deep, creative and memorable learning experiences.

Pete Jones @Pekabelo, Assistant Head Teacher, Director of Learning, Les Quennevais School, Jersey

Mark Anderson's *Perfect ICT Every Lesson* is the most comprehensive, yet accessible, overview of how ICT can be used by all teachers to enhance student learning that I have come across. Quite simply, there is something in it for teachers at every level of responsibility.

What I like most about this book, though, is that it constantly and unerringly sticks to Mark's fundamental principle that it is the learning, not the tech, that is paramount. This is extremely refreshing coming from one of the most technically knowledgeable and proficient educators out there, and I thank him for it.

Fundamentally, the measure of any good educational book is what you learn from it and what you take away from it to implement in your practice. In *Perfect ICT Every Lesson* Mark has handed me the metaphoric 'fish' of some tweaks to make my PowerPoints more PowerFull and to help me use search engines better. More importantly, this book has given me the 'fishing rod' of a far clearer understanding of the SAMR taxonomy, a framework that will help me to think and plan carefully in order to move towards the 'perfect ICT' of the title.

Keven Bartle @kevbartle, Deputy Head Teacher, Canons High School, London

Jam-packed full of accessible and inspirational ideas, the ICT Evangelist has created a companion for every teacher in the land. Mark's real-life shop floor experience instils the reader with the confidence with which to switch on the laptop and start experimenting. Be prepared – this is exciting stuff!

Jamie Portman @JamiePortman, Assistant Head Teacher, Campsmount (a Co-operative Academy), Norton

Mark has written an incredibly useful book, the title of which clearly suggests what it is about; it is not about a 'one off' ICT lesson but about integrating ICT in meaningful ways into everyday lessons to support and extend pupils' learning. It starts with a clear explanation of the SAMR taxonomy, challenging us to think of ways in which we can truly plan for use of technology that will not merely replicate or substitute what could be achieved in a more traditional way; instead, there are illuminating examples of what our pupils can achieve that would have been impossible before. A strength of the book is its plethora of case studies and concrete examples of tasks, with a strong focus on sound pedagogy. Another strength is its plain language and avoidance of unnecessary jargon, making it really teacher-friendly.

Mark addresses current debates such as the use of mobile devices in schools, including a look at the BYOD strategy adopted by some schools. You will learn from this book – I certainly did – a sure sign of a great read.

Hélène Galdin-O'Shea @hgaldinoshea, Head of Media Studies and English teacher

THE PERFECT ICT (Every) LESSON

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For Oscar and Dougie

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I'd also like to acknowledge the support and vision of Caroline Lenton, Ian Gilbert and Jackie Beere at Crown House Publishing/Independent Thinking Press – without their support and belief in me, I would never have had the opportunity to write this book.

None of this, of course, would have been possible without the support of my colleagues at the amazing Clevedon School. My head teacher, John Wells, and his team – including the mighty Jim Smith – have afforded me opportunities to do things that I don't think many other schools would

have let me do, such as develop innovative ways of working, research new pedagogical techniques and try them out in my classroom, and take (measured) risks to bring about improved learning outcomes.

Thanks to those individuals who have offered ideas and encouragement that have inspired my imagination and hunger for educational technological brilliance, in particular Andy Hutt and Tim Rylands.

I must also acknowledge my amazing professional learning network on Twitter of whom there is a cast of thousands. Thank you.

My final acknowledgment must go to my wife (and two amazing boys) without whom this book would never have been written. Countless trips to the zoo and park and many other random destinations, so that Daddy could work on his book, have made this work possible. Without you I would never have had all of these opportunities. Thank you Emma.

Foreword

Teachers have always been in the job of information communication. Now, with the rise of digital media technologies, the means of communicating information is evolving exponentially. How many of us fully use the technology available – not just for the benefit of our pupils, but also for ourselves? How many brilliant lesson ideas have you picked up from Twitter recently, and then delivered using a range of digital media technologies in the classroom?

Teachers who aren't yet using communication devices and social media as learning tools are missing out on some wonderful learning opportunities. But, at home, their pupils are not! They're sharing, joining, blogging, participating, reviewing, filing, photographing, listening, commenting and observing in more amazing ways than ever before. Many children now grow up with smartphones and tablet computers at home, and as soon as they can reach out for them, they begin to play and learn.

Watching 3-year-olds download videos, post photos on their blogs and learn words through iPad games, you start to realise that many teachers are delivering lessons that date from a different era. To fully lead learning today, teachers must be

willing to use technology to engage and motivate the young minds which are already immersed in this new world. This requires a mindset open to pushing ourselves out of our comfort zone and getting excited about trying out new technologies in our classrooms.

In this book, Mark Anderson helps teachers find new ways to incorporate ICT into the learning journey – whatever their age, background or familiarity with new technologies. Mark shows how all the key skills your pupils need can be taught using the remarkable new (and not so new) tools of technology and social media.

He is also clear that if we want to be the best teachers we can be, we also have to be learners in the world of ICT. Often, this means sharing expertise by teaching each other but it also involves learning from our pupils. Teachers also need to realise that we are entering a brave new world where CPD will never be the same again. There are huge opportunities to network and communicate using digital media such as Skype, Twitter and blogs linked to TeachMeets and learning forums which are providing a completely new context for professional development.

There has never been a better time to try out new technologies in the classroom and share your successes and challenges with each other in the profession. Mark makes this easy because his ideas are practical and applicable to all lessons and subjects. You will learn so much from just reading this book, but the challenge is to take the ideas and grow them in your classroom. From digital literacy to information

searches to e-safety, Mark gives us the practical advice we need to use ICT in a way that suits us and our pupils.

Teachers often long for stability and consolidation rather than for more change or new initiatives. However, the high-speed world of new technology means that this is no longer an option. We all need to react to the world in which our young people live and provide an education that responds to it. If we fail to grasp these new technologies, we risk becoming irrelevant or, even worse, ignored.

Read this book and enjoy experimenting with the ideas it contains in your lessons. At times it may feel risky and scary – but that's learning for you!

<div align="right">Jackie Beere, Tiffield</div>

Introduction

'Noooooo, not the ICT suite! I can't believe I wrote on my performance management targets that I'd use more technology in my lessons!'

The thought of taking pupils from the safe confines of your regular teaching room to the dreaded ICT suite (or 'Computing' as it will be known as from now on) can send even the bravest of teachers running to the hills. The worry that the pupils will know more than you, that you won't be the most knowledgeable person in the room, that there might be a problem and you won't know how to fix it, even those chairs that spin round and offer endless opportunities for misbehaviour ... or, perhaps, like many schools, you now have a bring your own device (BYOD) to school policy or have opted for a 1:1 programme with tablet devices. The trepidation over what pupils will get up to with those devices, and how to use them effectively to secure 'outstanding' use of technology in the classroom, feeds the insecurities of all teachers. It is OK to feel this way though: it is our concern about pupils' success in the classroom that makes us outstanding teachers.

The aim of this book is to take the fears you have and to transform them into confidence – a self-belief that will empower you to use technology enthusiastically, not because you feel you have to, but because you know it will support and enhance the progress your pupils can make. And perhaps, along the way, you will also learn more about making use of devices that are core to 21st century learning.

The advice given in this book will not be a set of hard and fast rules, but practical tips and ideas that you can build upon and add to – to make them your own – so that you have complete ownership of the practice you develop. My philosophy with ICT, and with technology in particular, has always been that I firmly believe that our lives can be made better with it. Think about microwave ovens, mobile phones, television, that amazing thing called Sky+ (when was the last time you had to sit through an advert if you have Sky+?), sat nav, tablet computers and so on. With this philosophy in mind, I always look to technology to help with everything that I do, including in the classroom. Never before has it played such a pivotal role in what we do and how our lives are affected.

The landscape of teaching across the world is changing, as is the way in which children learn.[1] As technology develops and the power of mobile technology, in particular, is being taken up more and more, pupils are embracing this – and it is

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1   As demonstrated in this useful infographic: http://www.opencolleges.edu.au/ infographic/media/21st_century_classroom.jpg/

really helping their progress.[2] Mobile technology has brought about ways of learning that have completely transformed how we can use technology in the classroom.

However, many teachers lack confidence when using technology in the classroom because of concerns that they don't know how to use it properly, so they would rather not. The aim of this book is to empower all teachers, from all sectors and subject areas, to embrace technology as an integral part of their 'outstanding' teaching. You will also learn about the changing world of social media and how savvy use of it can provide you with simply the best continuing professional development you have ever experienced.

This is a world where you can connect with teachers from around the globe, network and get advice to set up amazing experiences for your pupils. Be excited – be very excited …

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2 For example, there has been a dramatic improvement in results at Essa Academy, in Bolton, where pupils have been using iPod touch devices in the school and results have rocketed: see Chohan (2012).

Chapter 1

Taking ICT from zero to hero

Secondary schools ... should find ways of making ICT readily accessible to pupils in their classrooms so that it can be used to improve learning in other subjects.

Ofsted, *The Importance of ICT* (2009): 7

If you benchmark the levels of skill, understanding and application of technology by pupils who enter secondary education at age 11 over the last 15 years, their progress has been exponential. This is frequently because of the superb teaching that goes on in many primary schools, but it is also due to other factors:

- Technology has become more affordable and readily available
- Technology has become more intuitive and easy to use
- Technology has become more familiar to pupils at a younger age

- Teachers have become more adept at embedding ICT into the curriculum
- Teachers have become more skilled at using ICT

Pupils are engaged by the use of technology. They are savvy about its use, given that they use technology so much, so it makes sense to leverage their interest, skills and abilities in using technology to enhance learning.

It is already the case that there is no specific subject of ICT; it has become an area of learning which is pervasive throughout every subject. It might mean using spreadsheet software to calculate logical equations in maths, to plot results from an experiment in science, to map tidal ranges in geography, to compare sporting times in PE and so on. Information and communication technologies can be used to enhance the way in which pupils learn right across every phase and every subject.

Historically, of course, the subject of ICT came about as there was a demand from employers for pupils to leave school with a recognised qualification which demonstrated their skill at using particular types of software that would be beneficial in the workplace. Current thinking is starting to shift though. Many pupils now have a large number of these skills by the time they reach the end of their compulsory education, independent of participating in an ICT course. Many people, myself included, believe that whilst pupils do boast many ICT skills, it is important for them to have an opportunity to build on them formally. This will contribute to young people being successful in all areas of the curriculum.

> Teaching is outstanding and, together with a rich and relevant curriculum, contributes to outstanding learning and achievement. ...
>
> Pupils, and particular groups of pupils, have excellent educational experiences at school.
>
> Ofsted, *School Inspection Handbook* (2013): 29

SAMR taxonomy

> ICT was threaded through the whole curriculum of the most outstanding schools. Several of them used cross-curricular planning grids and maps to embed ICT opportunities in all aspects of curriculum planning. In the best curricula there were examples of ICT bringing new learning opportunities to other subjects.
>
> Ofsted, *ICT in Schools 2008–11* (2011): 16

This chapter aims to provide you with a framework which will help you to move from an introductory, or substitutional, use of technology in your lessons to a level that is more transformational. Ruben Puenterdura describes using technology across four different levels – from *substitution* and *augmentation* to *modification* and *redefinition*. He calls it the

SAMR model;[1] where progressing through the various levels takes learners from a basic level of learning in the substitution phase through to a level where learning is transformational at the redefinition level.

> Teachers use well-judged and often imaginative teaching strategies.
>
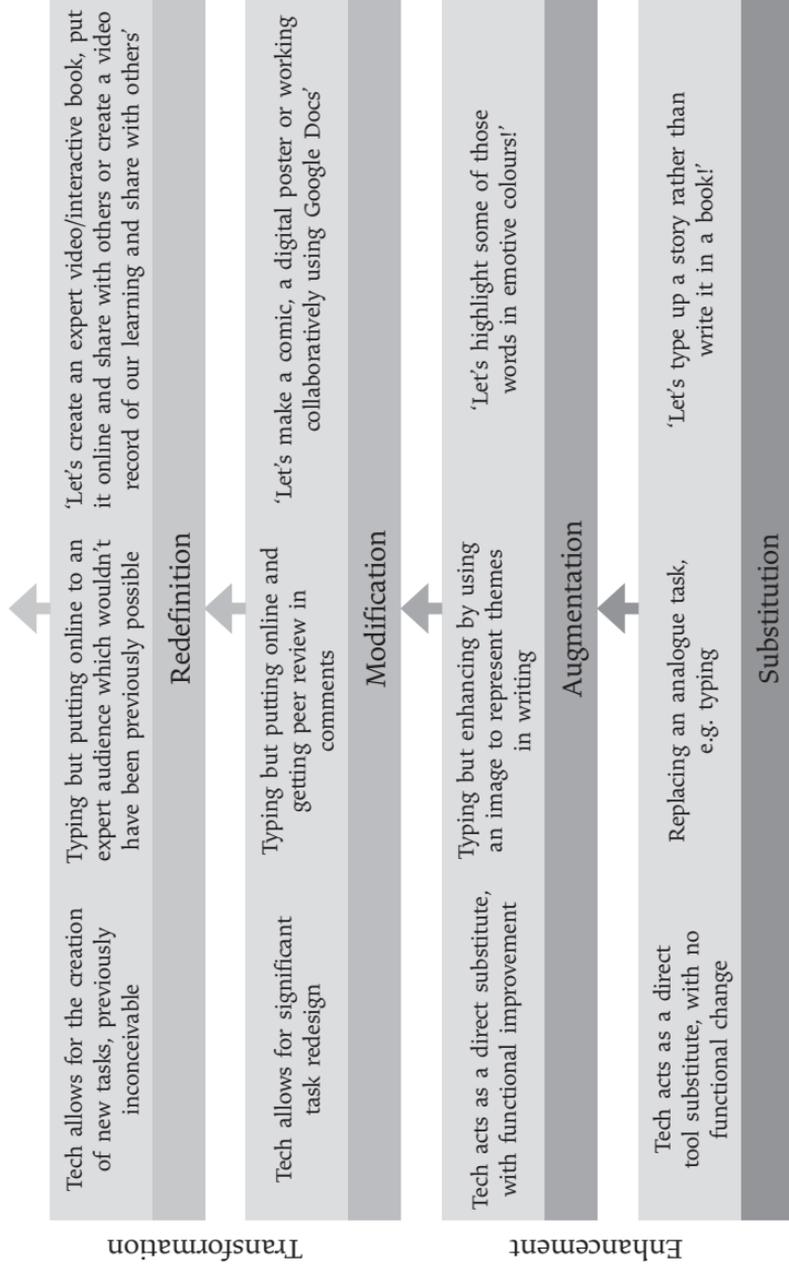> Ofsted, *School Inspection Handbook* (2013): 39

What needs to be perfectly clear, however, is that whatever level you are at on this taxonomy for generating learning using technology, it is perfectly OK. Deploying technology in the classroom with pupils is an exceedingly good way of engaging them in learning activities. Young people are familiar with new technologies and devices, even if you aren't, and you will be making small wins (some of which I will discuss below) that will help you find your feet when it comes to using technology in the classroom in a more integrated way.

The SAMR taxonomy enables you to think about how the learning taking place in your classroom could be extended further through your use of technology, thereby making the learning more rich, deep and extensive. For example, if you were developing a geography activity in which you wanted pupils to create a report about the economy of a country, you could ask them to go online and research that area. They

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1   Dr Ruben Puentedura's blog has information on everything you ever wanted to know about SAMR: http://www.hippasus.com/rrpweblog/

The SAMR model

	Tech description	Typing example	Level
Transformation	Tech allows for the creation of new tasks, previously inconceivable	Typing but putting online to an expert audience which wouldn't have been previously possible	'Let's create an expert video/interactive book, put it online and share with others or create a video record of our learning and share with others' — **Redefinition**
	Tech allows for significant task redesign	Typing but putting online and getting peer review in comments	'Let's make a comic, a digital poster or working collaboratively using Google Docs' — **Modification**
Enhancement	Tech acts as a direct substitute, with functional improvement	Typing but enhancing by using an image to represent themes in writing	'Let's highlight some of those words in emotive colours!' — **Augmentation**
	Tech acts as a direct tool substitute, with no functional change	Replacing an analogue task, e.g. typing	'Let's type up a story rather than write it in a book!' — **Substitution**

could then type up their findings in a word-processed document and hand in the assessment to you when complete.[2] This would be classed as a *substitution* activity. In fact, you could have given your pupils a worksheet and asked them to record this information in their books in the form of a short report. You are basically replacing one way of carrying out the task with another.

At the other end of the spectrum, however, and with the clever use of technology, you could transform the learning substantially – for example, by making online links with industry experts or with another school from that country. This could take the form of pupils talking to each other using a web-based collaborative document – for example, they could post questions and answers via sticky notes on one of the many sticky note sites available. Alternatively, by transforming the learning opportunities even further, they could videoconference with their contacts in a virtual, face-to-face conversation.

Enhancement levels

The bottom two stages of the SAMR model (*substitution* and *augmentation*) represent enhancements of existing ways of working. Tasks can be completed in different ways which are analogue, not digital. You don't really need technology in order to carry out the learning task; the technology is simply

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2   Encourage students to make use of footers (the space at the bottom of the page) in situations like this to record sources of information, e.g. website addresses.
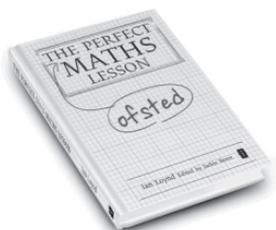
enhancing the activity with some functional improvement. Examples might include:

- Better presentation
- Spell checking
- Clearer work
- Access to research on the internet
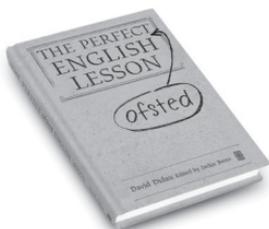- The ability to correct mistakes easily

Substitution basically means exchanging one thing for another. In the SAMR framework, it involves taking one method of completing a learning activity and replacing it with an equivalent but more technological approach. For example, you could ask pupils to do a handwriting activity in class, the technological equivalent of which would be typing it up on a word processor.

Augmentation is where you take the substitution task and augment or expand on it. Taking our example of typing on a word processor, moving up to augmentation would require introducing a functional improvement. This could be done in a number of ways, such as:
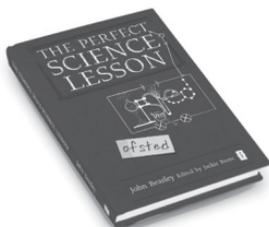
- Adding speech bubbles corresponding to each paragraph and explaining the meaning
- Adding images next to key words to represent what is being demonstrated
- If the writing is an analysis (e.g. business sales), including a graphical representation alongside the written analysis

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PERFECT ICT *Every* LESSON

uses the technology-related elements of the recent subject reports from Ofsted to provide clear and practical strategies that are proven to be successful in classrooms, offering up ideas for how they can be turned into a daily reality for all teachers.

"Dispels the myth that embracing technology in the classroom takes hours of discovery and days of practice before it is exposed to learners."
Daniel Edwards, Director of Digital Strategy, Stephen Perse Foundation

"Jam-packed full of accessible and inspirational ideas, the ICT Evangelist has created a companion for every teacher in the land. Mark's real-life shop floor experience instils the reader with the confidence with which to switch on the laptop and start experimenting. Be prepared – this is exciting stuff!"
Jamie Portman, Assistant Head Teacher, Campsmount

"For someone who considers themselves tech-savvy, I still found it packed full of 'Well, I didn't know that' information."
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"Perfect ICT Every Lesson is the most comprehensive, yet accessible, overview of how ICT can be used by all teachers to enhance student learning that I have come across. Quite simply, there is something in it for teachers at every level of responsibility."
Keven Bartle, Deputy Head Teacher, Canons High School

Mark Anderson is Assistant Head Teacher: Director of E-Learning at Sir Bernard Lovell School, Bristol where he focuses on iPad and technology-related teaching and learning. He is a popular and influential blogger who is renowned for providing teachers with ideas for digitalising learning to make it fun and effective. He believes that technology can improve both your life and your access to learning through the sharing and collaboration of ideas.