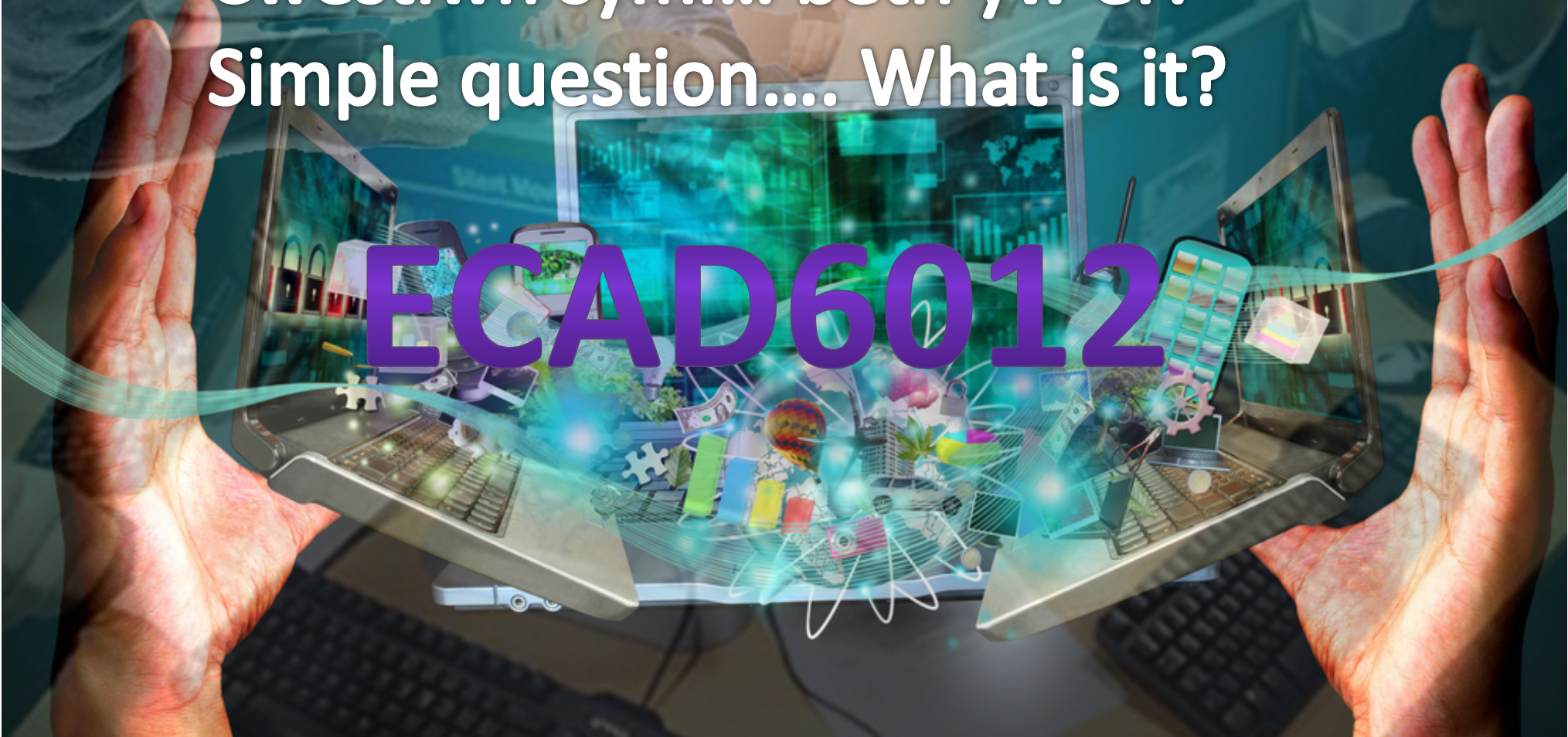


DIGITAL COMPETENCE CYMHWYSEDD DIGIDOL

Cwestiwn syml... beth yw ef?
Simple question.... What is it?

ECAD6012



Meddylwch / Think

Ydy Cymhwysedd Digidol yn
TGCh?

Is Digital Competence ICT?

Ydy Cymhwysedd Digidol yn
pwnc craidd?

Is Digital Competence a Core
subject?

Ydy e'n rhan o MDPh?

Is it part of an AOLE?



WHY IS IT IMPORTANT?

- Donaldson
- Curriculum
- ESTYN , ERW, EAS, GWE, CSC
- Industry and the economy – Jobs and Careers
- STEM – SCIENCE TECHNOLOGY
ENGINEERING & MATHEMATICS
- PISA

Hanes / History

Adroddiad grŵp lliwio TGCh /
ICT steering group report

2013

Adroddiad Donaldson /
Donaldson Report

2015

Ysgolion Arloesi ac Arbenigwyr /
Pioneer Schools and experts

2015

Fframwaith Cymhwysedd Digidol/
Digital Competence Framework

2016

Datblygiad y datganiadau dilyniant/
Development of the progression
statements

2018

Adroddiad – CAMAU - Reports

<https://beta.gov.wales/science-and-technology-aole-what-matters-updat>



padlet my old friend

<https://padlet.com/mathewreesjones/CD2018>

Yr hen ffrend...
Padlet!



FUTURE SKILLS...

- What learners need in the future?
- What are the priorities for education systems across the world?

<http://www.oecd.org/education/wales-should-continue-reforms-to-boost-quality-and-equity-of-school-system.htm>

TASG - TASK 1

- What learners need in the future?
- What are the priorities for education systems across the world?



<https://www.youtube.com/watch?v=7g8OpiWR83Y>

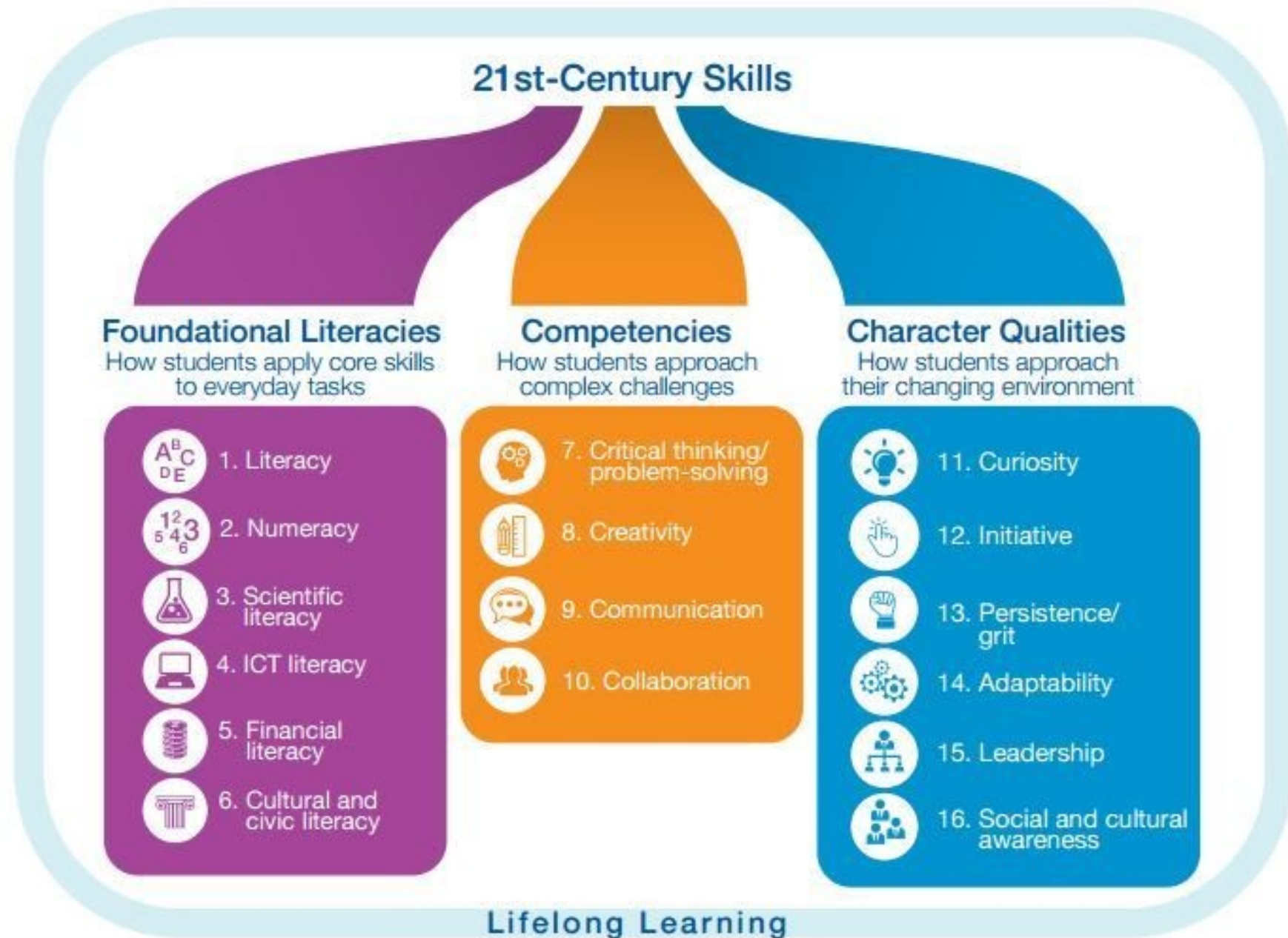




<https://www.youtube.com/watch?v=6p0VM-yUpGk>

WORLD
ECONOMIC
FORUM

Exhibit 1: Students require 16 skills for the 21st century



Note: ICT stands for information and communications technology.

Exhibit 3: A variety of general and targeted learning strategies foster social and emotional skills



INDUSTRY AND THE ECONOMY

“At the same time 50 percent of the jobs what we’ll have in 2025 don’t exist yet, according to a CBRE/Genesis report. [14] Perhaps the most jarring estimate from the report is that 65 percent of today’s primary school children will find themselves in jobs that don’t exist yet. [15]”

INDUSTRY AND THE ECONOMY

“According to a 2016 report by the World Economic Forum, "By one popular estimate, 65% of children entering primary school today will ultimately end up working in completely new job types that don't yet exist." Even "old" jobs will look radically different in workplaces transformed by technology, changing demographics, and globalization. So how do we prepare students for jobs and workplaces that don't exist yet? Here are a few thoughts gathered from teachers at Connections Academy®—supported schools. After all, they are pioneers in online education, a field that itself didn't exist 20 years ago”

STEM

SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS



- “STEM is a curriculum based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics — in an interdisciplinary and applied approach. Rather than teach the four disciplines as separate and discrete subjects, STEM integrates them into a cohesive learning paradigm based on real-world”
- <http://www.nationalstemcentre.org.uk/>



<http://www.stemcymru.org.uk/en/index.php>

<http://www.stemclubs.net>

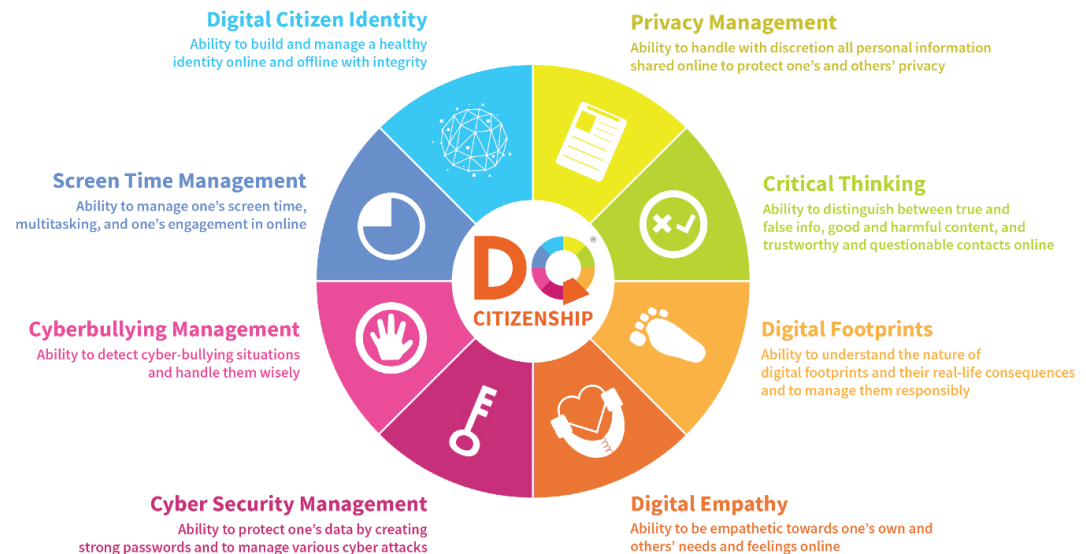


Nationally coordinated by STEMNET



TASK - TASG 2

8 digital life skills all children need – and a plan for teaching them

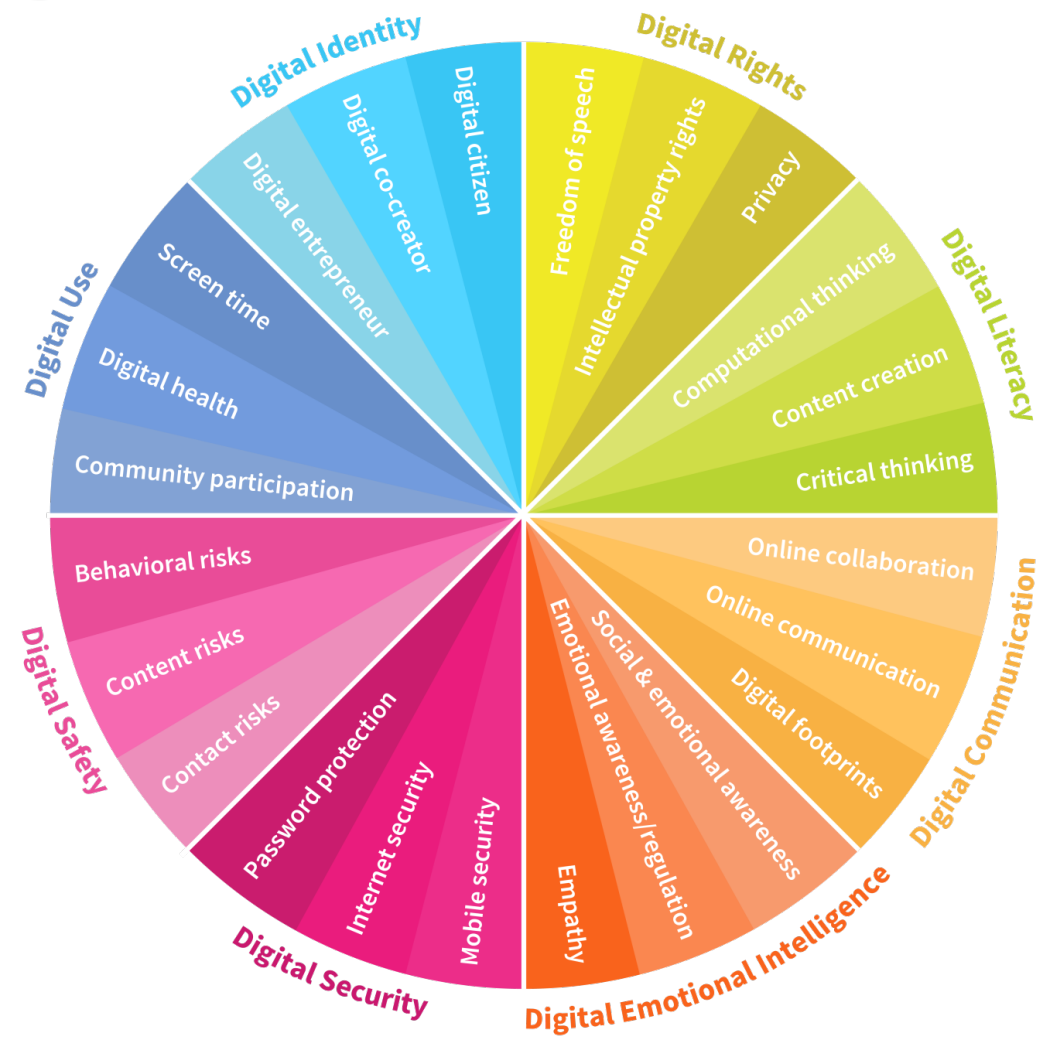


<https://www.weforum.org/agenda/2016/09/8-digital-life-skills-all-children-need-and-a-plan-for-teaching-them>



TASK - TASG 3

WORLD ECONOMIC FORUM



<https://www.weforum.org/agenda/2016/06/8-digital-skills-we-must-teach-our-children/>



Y Fframwaith / The Framework

Dinasyddiaeth.

Citizenship.

Rhyngweithio a
chydweithio.

**Interacting and
collaborating.**

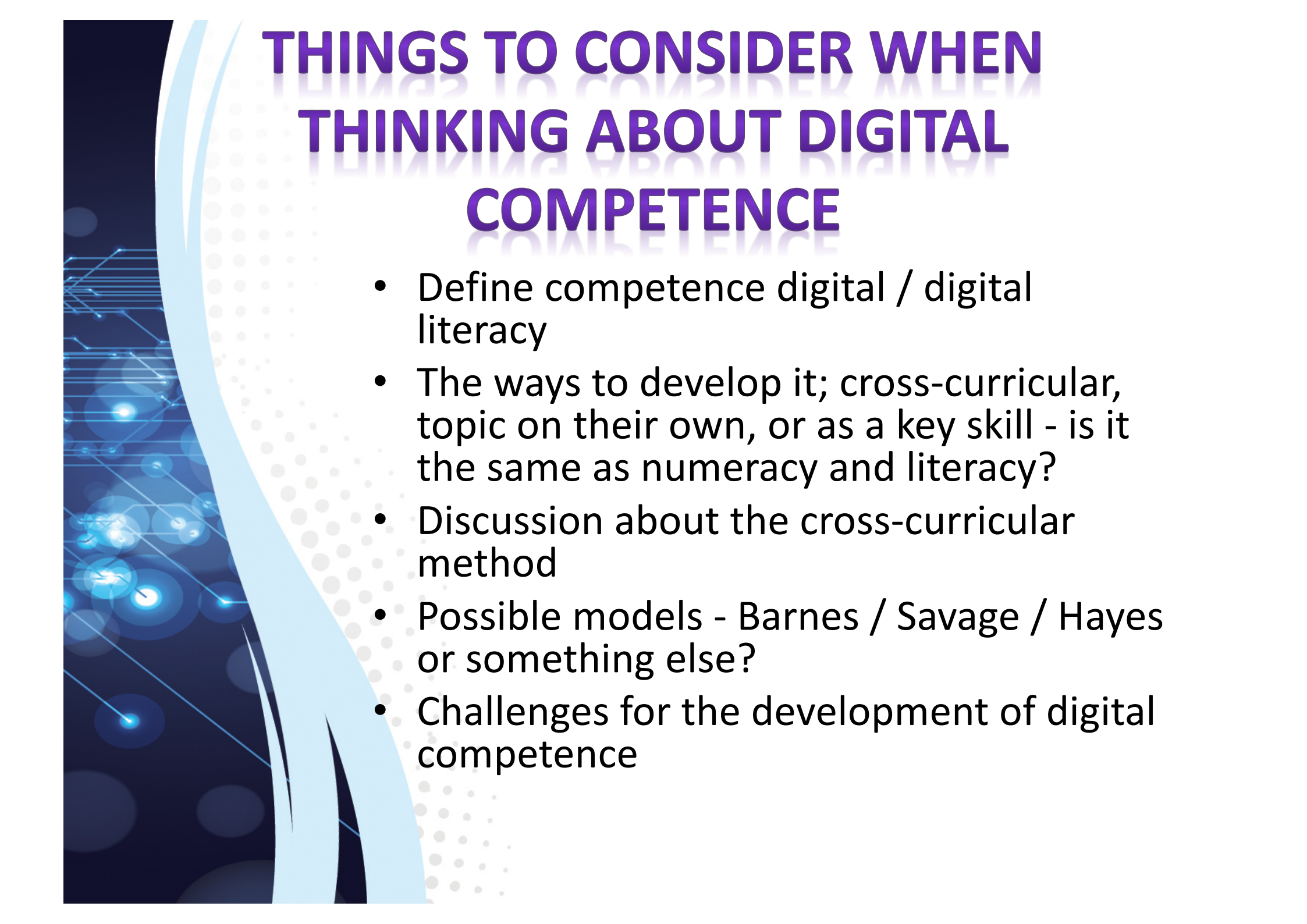
Cynhyrchu.

Producing.

Data a meddwl cyfri
adurol.

**Data and
Computational
thinking.**

Dinasyddiaeth Citizenship	Rhyngweithio a chydweithio Interacting and collaborating	Cynhyrchu Producing	Data a meddwl cyfri adur Data and computational thinking
1) Hunaniaeth, delwedd ac enw da / Identity, image and reputation 2) Iechyd a lles / Health and well- being 3) Hawliau digidol, trwyddedu a pherchnogaeth / Digital rights licensing and ownership 4) Ymddygiad ar-lein a Seiberfwlio / Online behaviour and cyberbullying	1) Cyfathrebu / Communication 2) Cydweithio / Collaboration 3) Storio a rhannu / Storing and sharing	1) Cynllunio, cyrchu a chwilio / Planning, sourcing and searching 2) Creu / Creating 3) Gwerthuso a gwella / Evaluating and improving	1) Datrys problemau a modelu / Problem solving and modelling 2) Llythrennedd gwybodaeth a data / Data and information literacy



THINGS TO CONSIDER WHEN THINKING ABOUT DIGITAL COMPETENCE

- Define competence digital / digital literacy
- The ways to develop it; cross-curricular, topic on their own, or as a key skill - is it the same as numeracy and literacy?
- Discussion about the cross-curricular method
- Possible models - Barnes / Savage / Hayes or something else?
- Challenges for the development of digital competence



ICT Steering Group

‘As the ICT steering group identified for the report, competences ‘should not primarily be predicated on rapidly changing technologies, but should focus on pedagogy, deeper skill development, transferability, and understanding, as well as potential application of these competencies’ (Arthur, et al. 2013)





POSSIBLE debates...

- Discuss how to develop the 3 aspects in a cross-curricular approach - through models - note the challenges of such models – how do they relate to Numeracy / Literacy / Digital Competence
- Form your own model
- Critique current initiatives by the government - formation LNF and DCF - eg Looking at the structure of ERW for DCF- suggestions



What is **DONALDSON'S** opinion?



What about the **CONSORTIA**?



Eis Rhanbarth ar Waith
Education through Regional Working

Llwybr a Awgrymir at Cymhwysedd Digidol

Nodi aelod o staff i
arwain a chefnogi
Cymhwysedd
Digidol ym mhob
ysgol

Mae pob athro a
staff cymorth yn
meddu ar y gallu
a'r adnoddau i
helpu dysgwyr i
feithrin a
defnyddio eu
sgiliau TGCh ar
gyfer dysgu

Mae'r disgyblion yn
gwneud defnydd
llawn o adnoddau
digidol, gan
gynnwys Hwb, ac yn
gallu cymhwyso eu
sgiliau TGCh yn
llwyddiannus ar
draws y cwricwlwm

Mae gwaith digidol
y disgyblion i'w
weld ochr yn ochr
â'u gwaith
ysgrifenedig,
wedi'i gysylltu
trwy godau QR,
ayb

Mae'r ysgol yn
dechrau defnyddio'r
fframwaith
eDdiogelwch 360
Degrees Safe Cymru
trwy Hwb

Mae'r ysgol yn
sefydlu Cyngor
Cymhwysedd
Digidol i hwyluso
llais y disgybl ac
arbenigedd

Mae'r disgyblion a'r
staff yn defnyddio
system storio
cwmwl trwy Hwb,
lle y bo'n briodol,
gan gael budd o
ddull gweithredu
'unrhyw ddyfais'

Mae'r ysgol yn
dechrau
defnyddio'r
Fframwaith
Cymhwysedd
Digidol newydd
Llywodraeth
Cymru

BETH AM Y GWEDDILL?

Gwe, EAS, CSC ...

Beth sy'n digwydd yn Lloegr? Yr Alban
Gogledd Iwerddon?

Datblygu dadl...



PISA?



Safbwyntiau am y dull **TRAWSCWRICWLAIDD**

Barnes

Savage

Hayes

Hague a Payton

BARNES' MODEL

Double Focus CCL

Traditional subject based teaching is regularly interrupted by an opportunity to apply aspects of learning in two subjects to a real problem, issue or question.

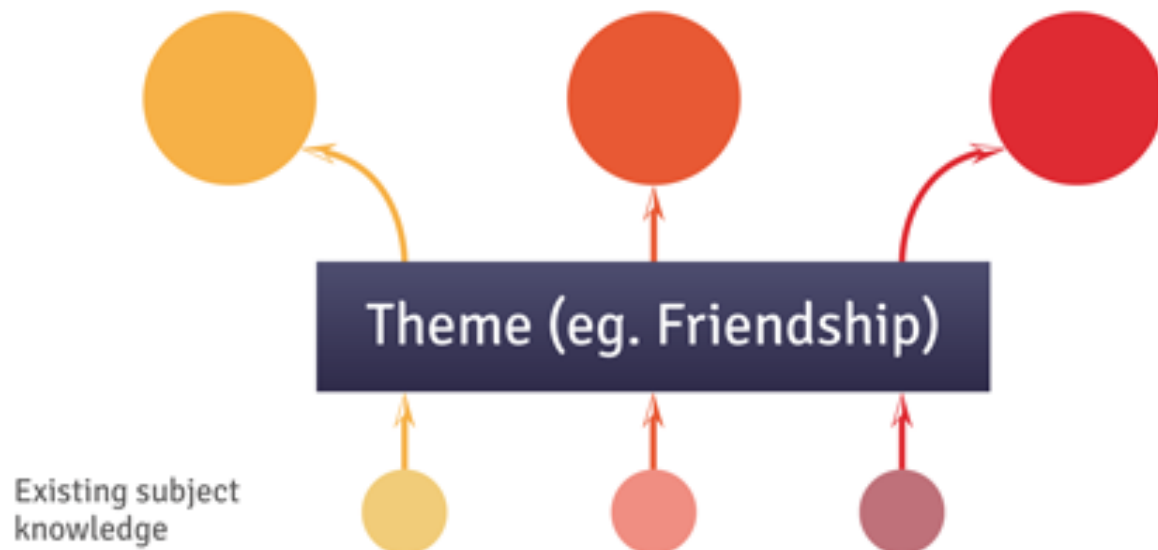
Curriculum is taught as separate subjects



BARNES' MODEL

Where a 'life skills' theme is approached through the eyes of several different subjects

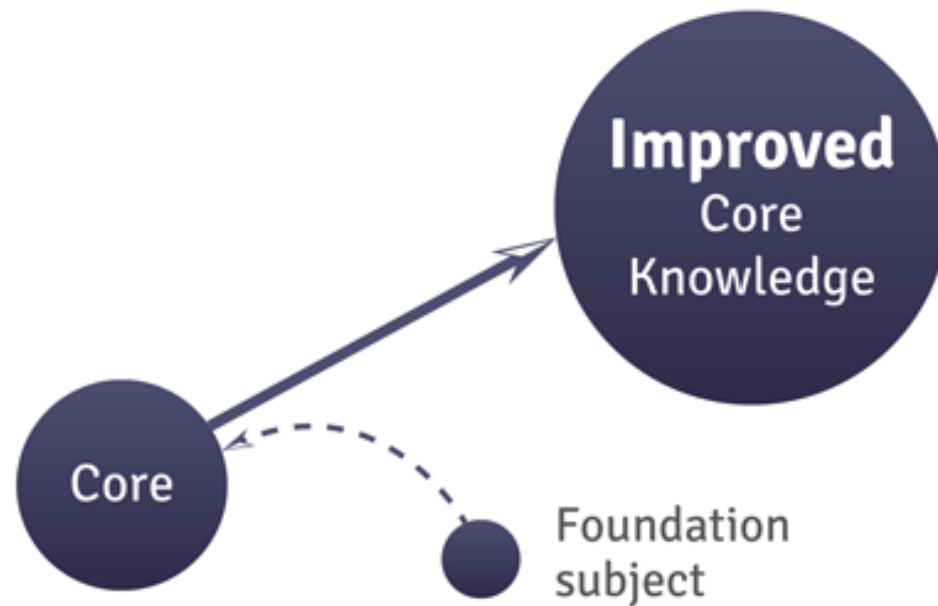
Thematic CCL



BARNES' MODEL

Adding a foundation knowledge of a subject to enhance overall core knowledge

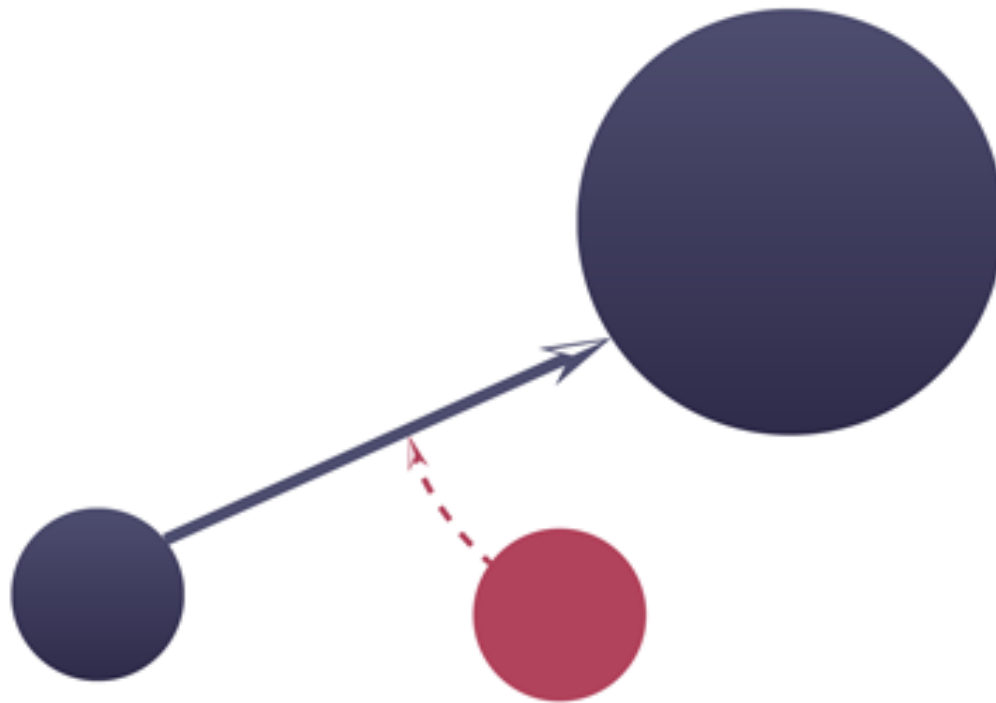
Token Connectivity



BARNES' MODEL

One subject used to support learning in another discipline

Hierarchical CCL



BARNES' MODEL

Multi Disciplinary CCL

One stimulus used
to generate deep
learning in two
subjects



BARNES' MODEL

Two disciplines drawn together for a creative outcome

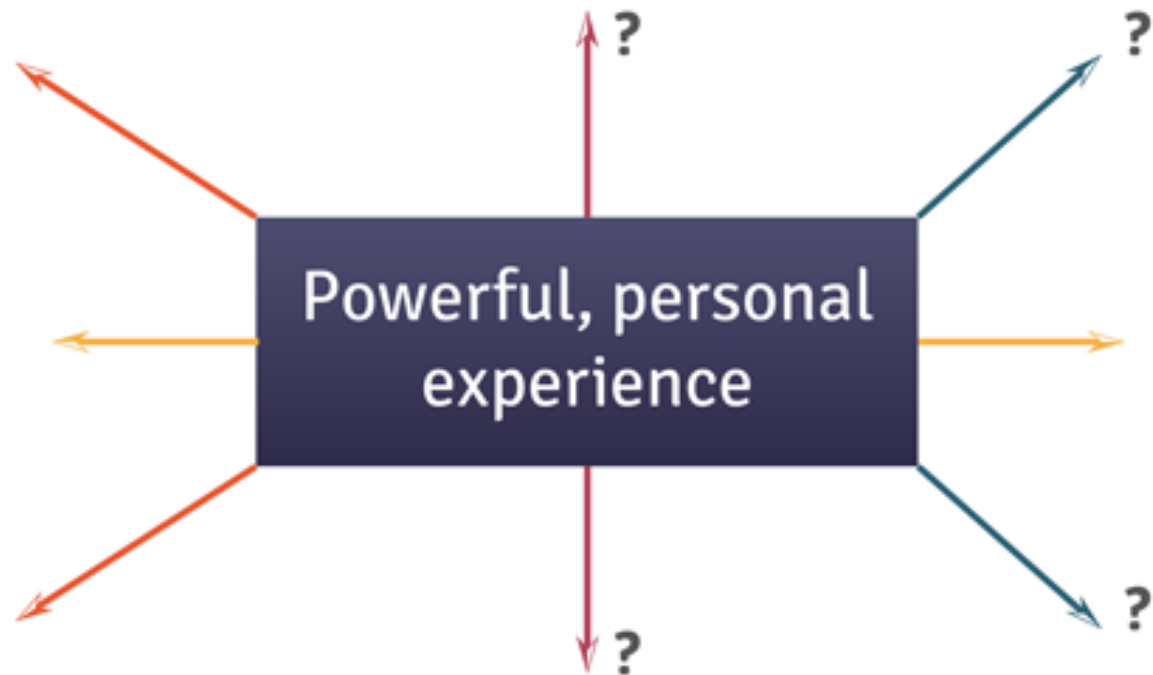
Inter-Disciplinary CCL

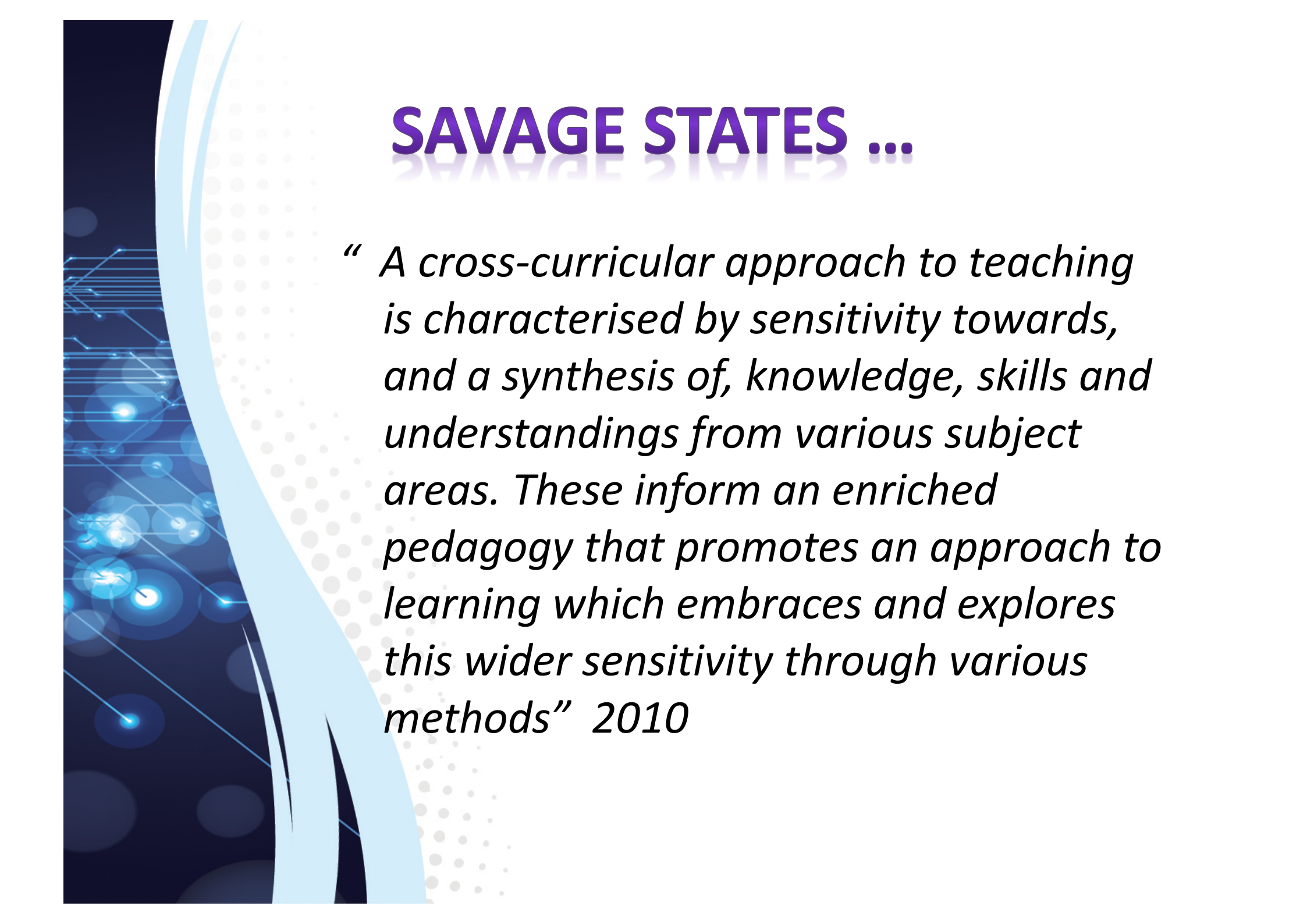


BARNES' MODEL

Learning follows
children's lead

Opportunistic CCL





SAVAGE STATES ...

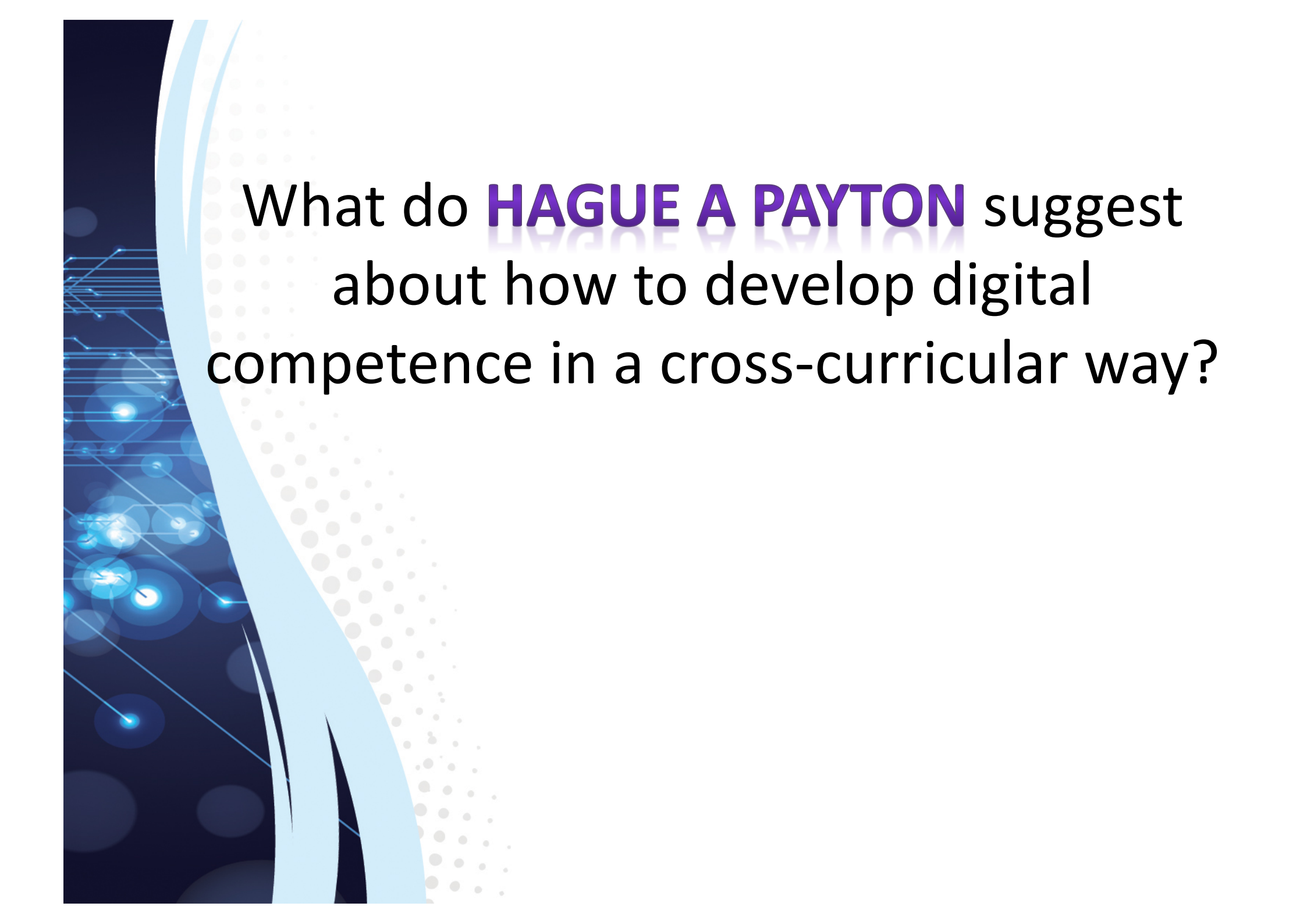
“ A cross-curricular approach to teaching is characterised by sensitivity towards, and a synthesis of, knowledge, skills and understandings from various subject areas. These inform an enriched pedagogy that promotes an approach to learning which embraces and explores this wider sensitivity through various methods” 2010



Read the article by **HAYES**

“The seductive charm of a cross-curricular approach”

How does this relate to digital competence?



What do **HAGUE A PAYTON** suggest
about how to develop digital
competence in a cross-curricular way?



So are there obstacles for the
development of Digital Competence?

Is there value to the initiative?

Does Digital Competence differ from
numeracy or literacy?

Are there any who are against the cross-
curricular approach?



Challenges

The South West Wales
Centre of Teacher Education

Key Concepts - Cysyniadau Allweddol



- User, Consumer v Competency & Creation
- Early adopter, early discarder
- Digital natives, digital immigrants
- Competency is not about coding
- Impossibility of 100% competence with digital technology

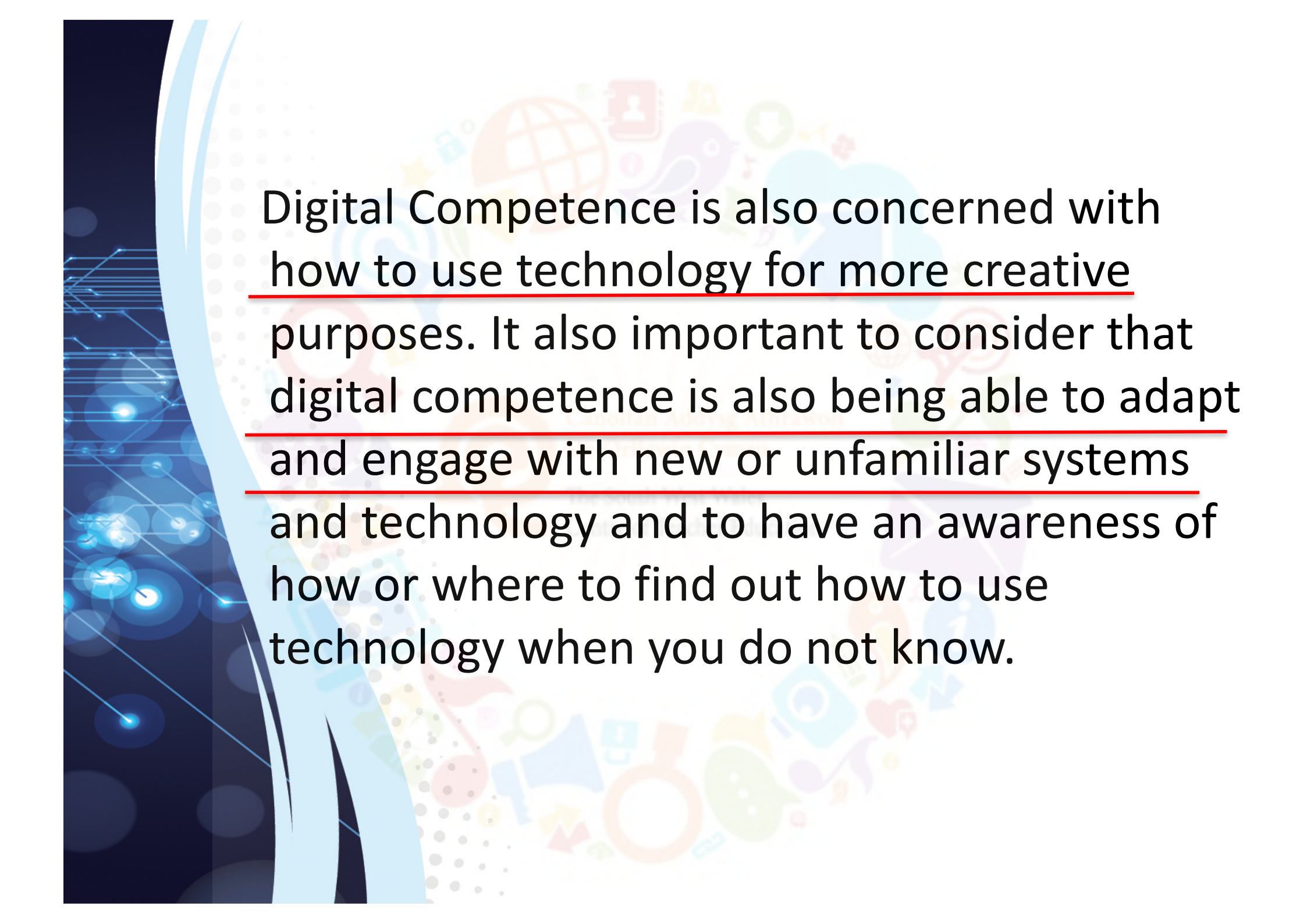
Users, Consumer v Competency and Creation

The widespread use of technology in our working lives and in education mean that we all have become users of technology. It is important to consider that being a proficient technology user does not mean that you are completely digitally competent. Digital competence has more aspects to it than just using technology.



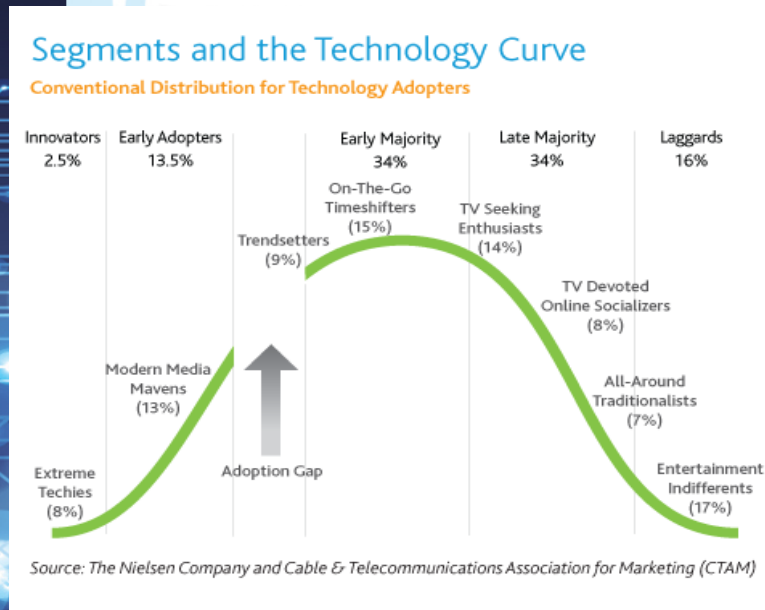
Advocates of computer science and computing, particularly those in industry are concerned with an under-skilled work force in areas such as programming and computer coding. They have indicated that more could be done in schools to develop these skills.

Work by Nesta points to a new digital divide: showing that for every child learning to make things using digital technology, over 60 are being left behind. [Young Digital Makers](#) Nesta



Digital Competence is also concerned with how to use technology for more creative purposes. It also important to consider that digital competence is also being able to adapt and engage with new or unfamiliar systems and technology and to have an awareness of how or where to find out how to use technology when you do not know.

Early adopter, early discarder



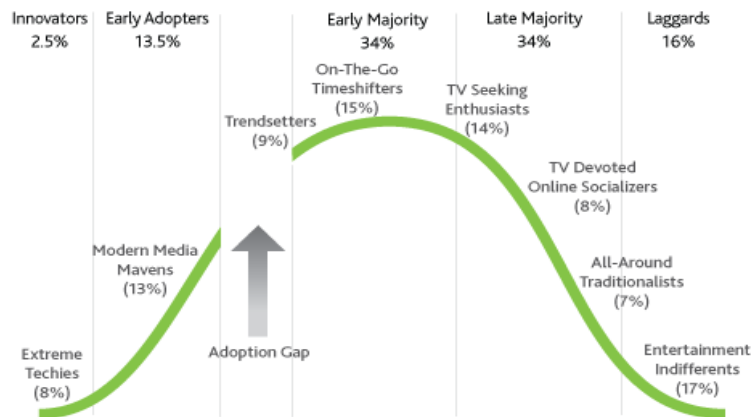
The difficulty with early adopters is the initial cost of cutting edge technology that may not become mainstream in the long run and if it does become a mainstream adoption it can become cheaper for others despite the initial premium that was paid by the early adopters i.e wasting budget initially.

Early adopter, early discarder

You will notice the adoption gap in the model. For some technologies, this gap represents the end of the road. The technology never gains mainstream acceptance, either because it is ill-suited to the mainstream or because another technology supersedes it (for example “Laser disc” and “Blu-Ray”, 3D interactive White boards).

Segments and the Technology Curve

Conventional Distribution for Technology Adopters

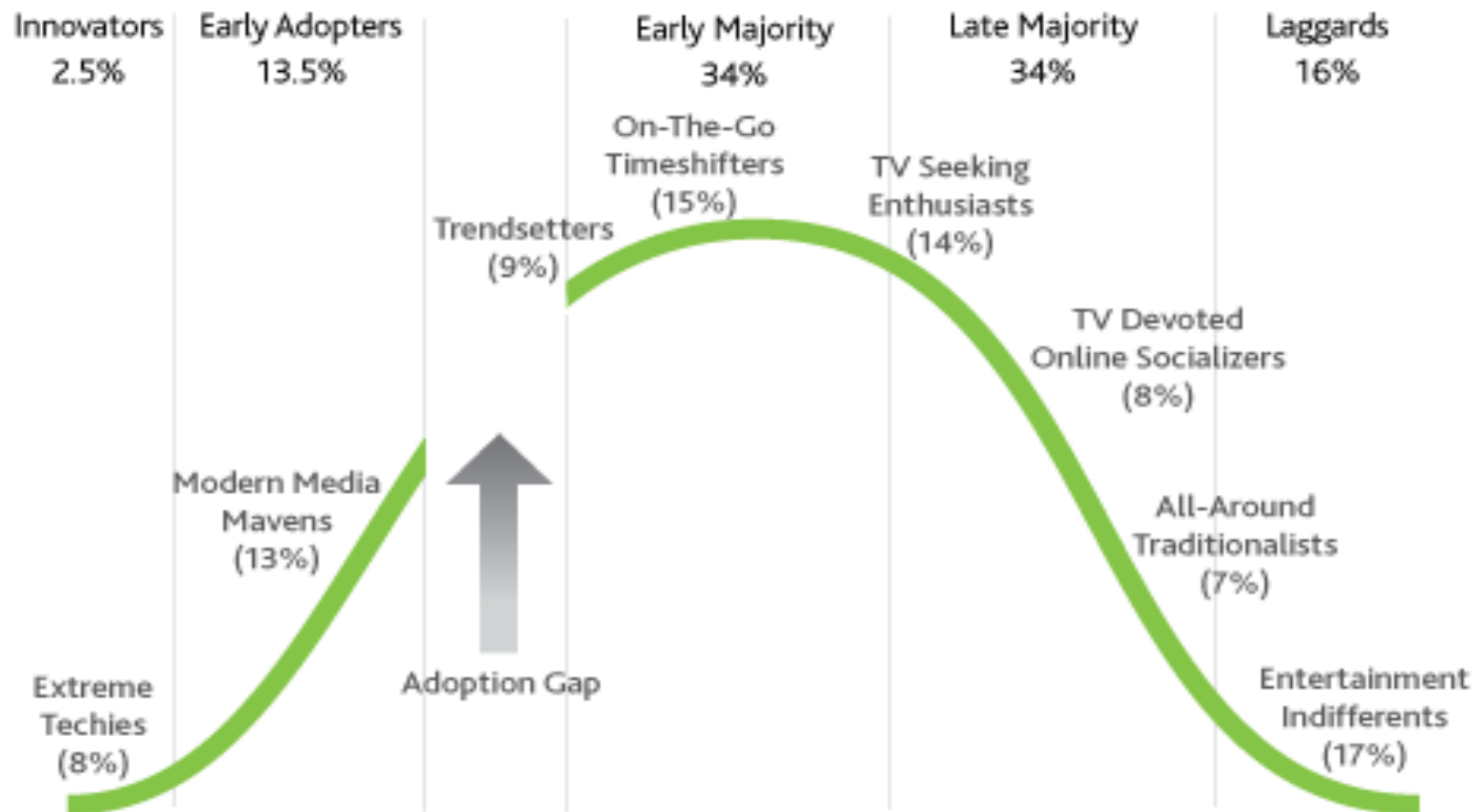


Source: The Nielsen Company and Cable & Telecommunications Association for Marketing (CTAM)

Early adopter, early discarder

Segments and the Technology Curve

Conventional Distribution for Technology Adopters



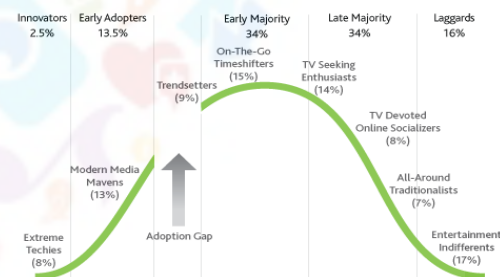
Source: The Nielsen Company and Cable & Telecommunications Association for Marketing (CTAM)

Early adopters

- These graphs help answer the early adopters when they come calling. Early acceptance of a new technology does not guarantee its popularity with the mainstream. It also means that being sector leading in technology in terms of an education setting is also a potential gamble.

Segments and the Technology Curve

Conventional Distribution for Technology Adopters



Source: The Nielsen Company and Cable & Telecommunications Association for Marketing (CTAM)

Early Discarders

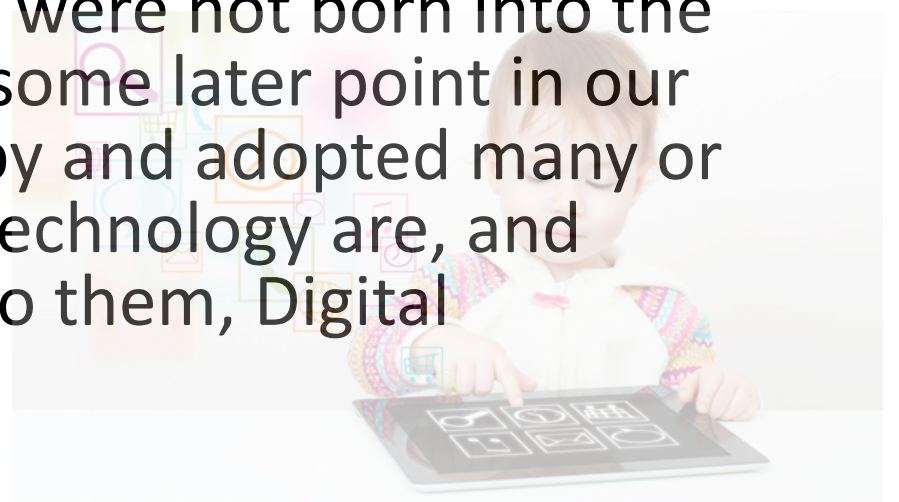
- Those who may very well be early adopters of technologies may also be those who discard the very same technology in order to try and adopt another, almost following an evaluation model. This may mean that after a certain time scale it maybe decided that there are alternatives or better technologies available for the same or similar purposes.

Digital natives and digital immigrants

It is clear that the learners that we are now dealing with are considerably more aware and familiar with our technologically advanced world. [Prensky \(2001\) refers to them as “Digital Natives”](#).

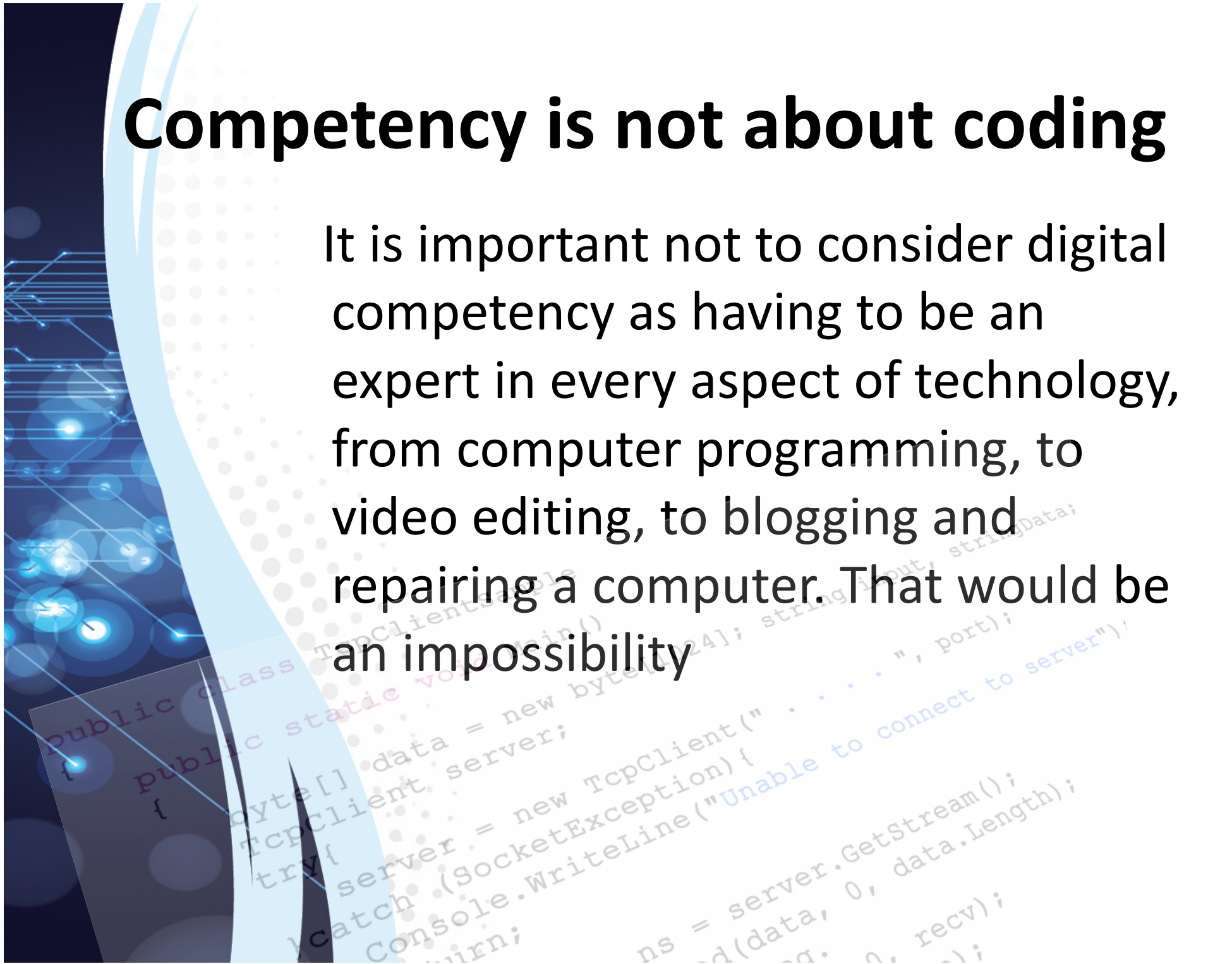
Learners today are all “native speakers” of the digital language of computers, video games and the Internet.

These are the learners we have in schools and with our trainee teachers. According to [Prensky](#) that would make those of who were not born into the digital world but have, at some later point in our lives, become fascinated by and adopted many or most aspects of the new technology are, and always will be compared to them, Digital Immigrants.



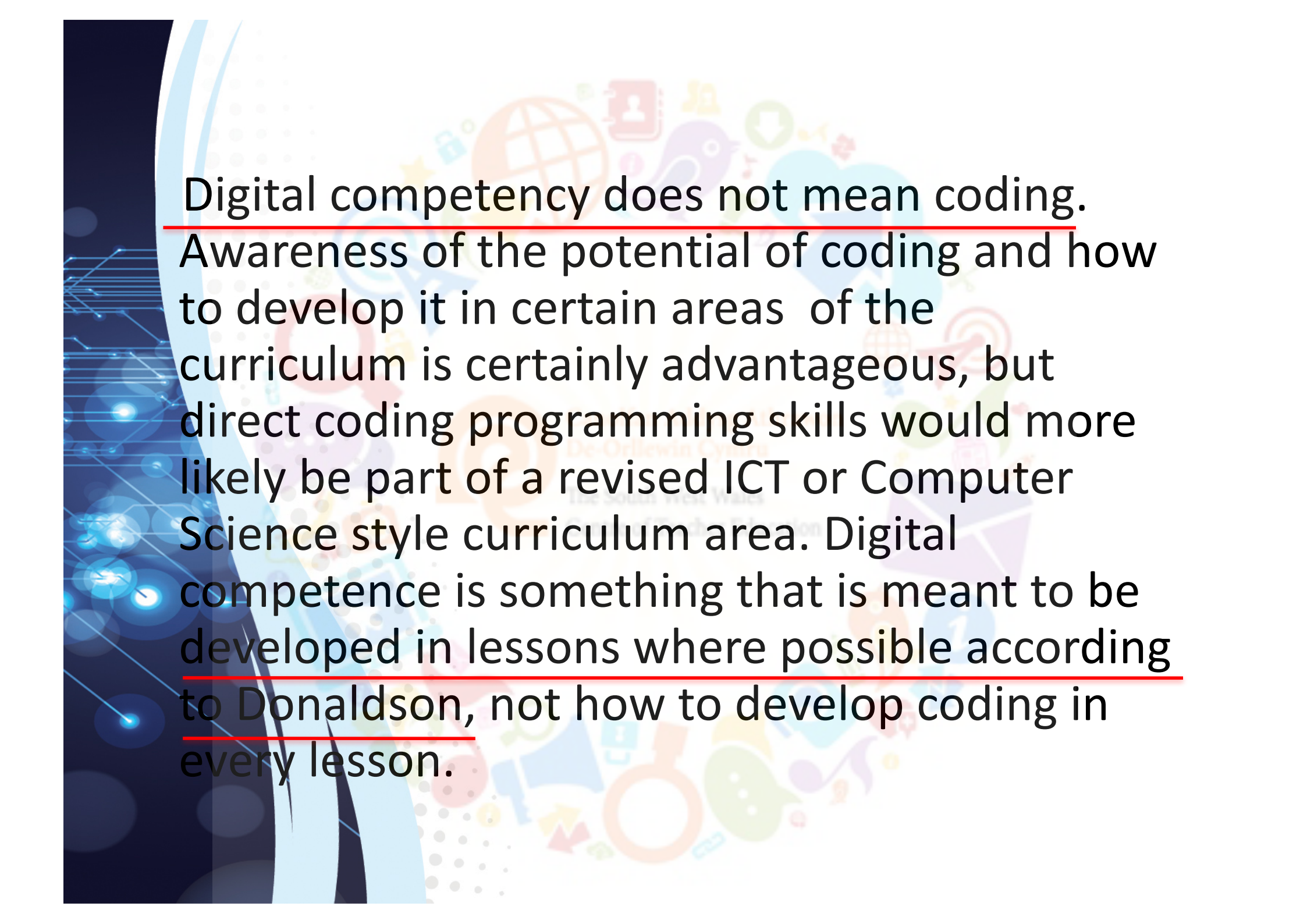
Competency is not about coding

It is important not to consider digital competency as having to be an expert in every aspect of technology, from computer programming, to video editing, to blogging and repairing a computer. That would be an impossibility



However, given the increased profile of aspects considered as computer science, and in particular coding skills, in the National Curriculum in England, it is fair to say that many educational practitioners have found themselves despairingly considering how on earth they are going to teach programming and computer coding.





Digital competency does not mean coding.
Awareness of the potential of coding and how to develop it in certain areas of the curriculum is certainly advantageous, but direct coding programming skills would more likely be part of a revised ICT or Computer Science style curriculum area. Digital competence is something that is meant to be developed in lessons where possible according to Donaldson, not how to develop coding in every lesson.

Impossibility of 100% competence with digital technology

Given the diverse nature of technology and the digital world and its ever changing and development it would be impossible to develop complete expertise in all aspects of for example how to use the latest version of Microsoft Office or latest ipad.

Changes and developments in technology both in hardware and software mean that 100% competence would be fleeting if not impossible. The competency required is the ability to adapt, learn and adapt to these changes.



padlet my old friend

<https://padlet.com/mathewreesjones/CD2018>

Yr hen ffrind...
Padlet!



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