Cronfa - Swansea University Open Access Repository

_____

This is an author produced version of a paper published in:
BERA Conference 2017

_____

Cronfa URL for this paper:
http://cronfa.swan.ac.uk/Record/cronfa43574

_____

Conference contribution :

Crick, T. & Beauchamp, G. (2017). *Fframwaith Cymhwysedd Digidol: Rethinking digital competencies in the new Welsh curriculum.* BERA Conference 2017, University of Sussex, Brighton, UK: British Education Research Association.

_____

Fframwaith Cymhwysedd Digidol: Rethinking digital competencies in the new Welsh curriculum

Tom Crick and Gary Beauchamp

Cardiff Metropolitan University | Prifysgol Metropolitan Caerdydd

Context - language

'Welsh language is an essential and enduring component in the history, culture and social fabric of our nation. We must respect that inheritance and work to ensure that it is not lost for future generations'. (WAG, 2003, p.1)

BUT

2011 census: '19 per cent of people living in Wales aged three and over reported that they could speak Welsh. This was down from 20.8 per cent in 2001 and, despite an increase in the size of the population, the number of Welsh speakers decreased by 20,000 to 562,000 in 2011.

Context - schools

Schools in Wales: January 2016	English-medium	Welsh – medium	Total schools	Total pupils
Nursery (under 5)	13		**13**	1,019
Primary (age 5-11)	882 **(76% of pupils)**	428 *66,101 pupils* **(24% of pupils)**	**1,310**	276,954
Middle (age 8-13)	2 **36% of pupils)**	5 *3,459 pupils* **(64%)**	**7**	5,371
Secondary (age 11-16/18)	156 **(80% of pupils)**	49 *35,399 pupils* **(20%)**	**205**	178,669
Special (needs)	39		**39**	4,542
Total				**466,555**
Independent (fee paying) [age 5-16/18)	66		**66**	

Context – education policy

- in 1999, devolution of limited power (including education) to the new Welsh Assembly Government (WAG), now Welsh Government (WG).

- Since 2010, there has been significant scrutiny of ICT in education across the UK – from substantial (and ongoing) computing curriculum reform (Brown et al., 2014), through to the challenges of developing digital competencies of both teachers and students.

- Wales has taken a different path in rethinking its ICT curriculum compared to England (Crick & Moller, 2016);

- now in the midst of wholesale curriculum reform leading and an independent review of the whole curriculum (Donaldson, 2015), with profound pending changes to the structure and monitoring of education, influenced by an ICT curriculum review (Arthur et al., 2013)

- 'For any particular policy initiative there is a 'field' of actors each with its own ability to exercise power and control' (Beauchamp and Jephcote, 2016, p.109) – *for the first time teachers potentially have power and control over curriculum*

Successful Futures

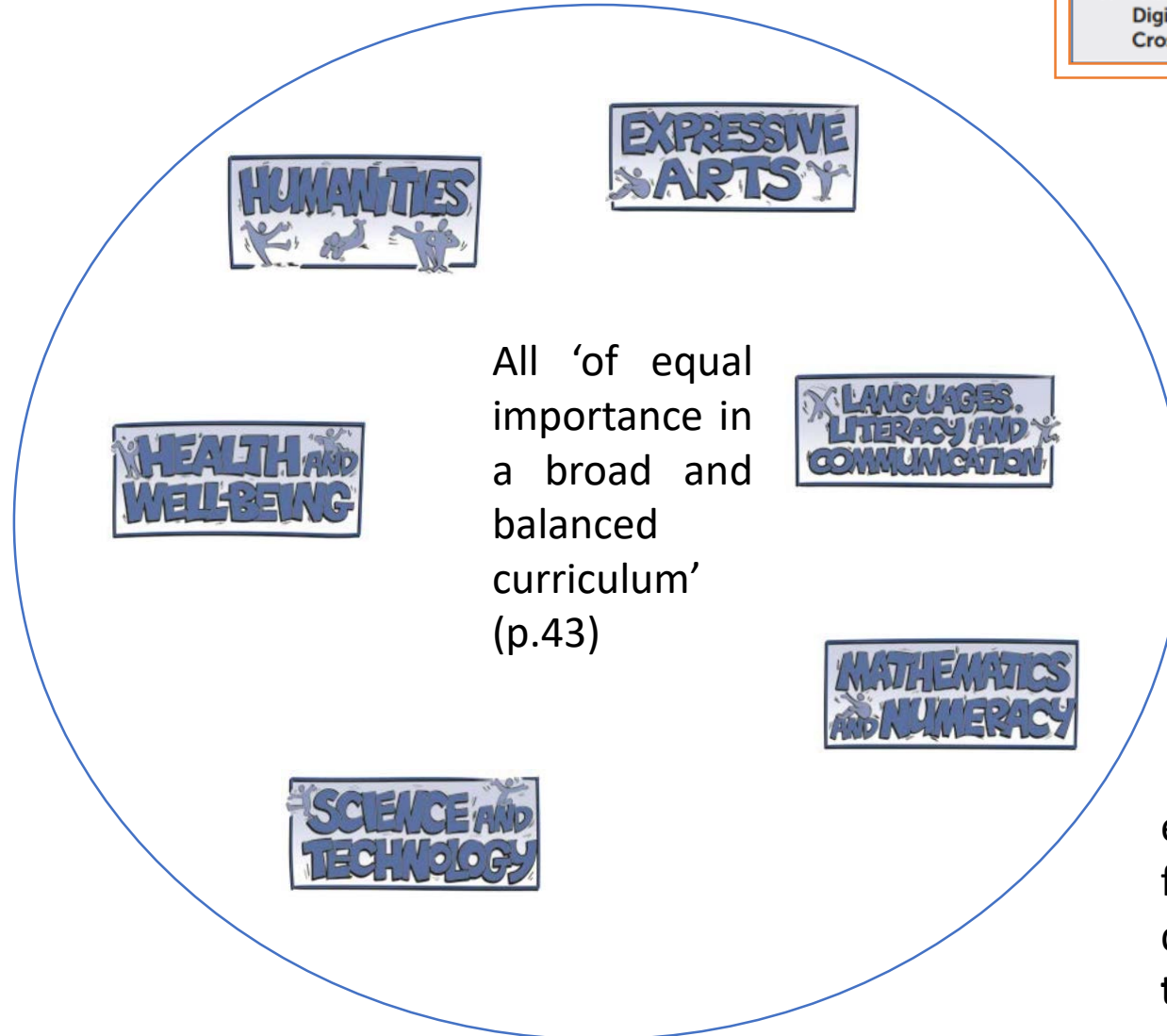Independent Review of Curriculum and Assessment Arrangements in Wales

Professor Graham Donaldson CB
February 2015

NUMERACY
Cross-curriculum

>>> **Recommendations**

6. Children and young people should have their learning developed across the curriculum through three Cross-curriculum Responsibilities that should be the responsibility of all teachers: literacy; numeracy; and digital competence.

7. A digital competence framework and an accompanying 'Routes to Learning Digital Competence' should be developed and be included as a Cross-curriculum Responsibility.

EXPRESSIVE ARTS

HUMANITIES

HEALTH AND WELL-BEING

LANGUAGES, LITERACY AND COMMUNICATION

All 'of equal importance in a broad and balanced curriculum' (p.43)

MATHEMATICS AND NUMERACY

SCIENCE AND TECHNOLOGY

DIGITAL COMPETENCE
Cross-curriculum

LITERACY
Cross-curriculum

ensure that children and have frequent opportunities to develop, extend and apply **across the curriculum.**

Pioneer model – DCF: Pioneer of the Pioneer model!

"It is the Review's intention that, by adopting a lighter touch in respect to legislation, schools and teachers would be encouraged to take significant responsibility for developing a curriculum which is consistent with national expectations, but which is also able to reflect the needs of the children and young people in their school."

Donaldson (2015) *Successful Futures: Independent Review of Curriculum and Assessment Arrangements in Wales (p.100)*
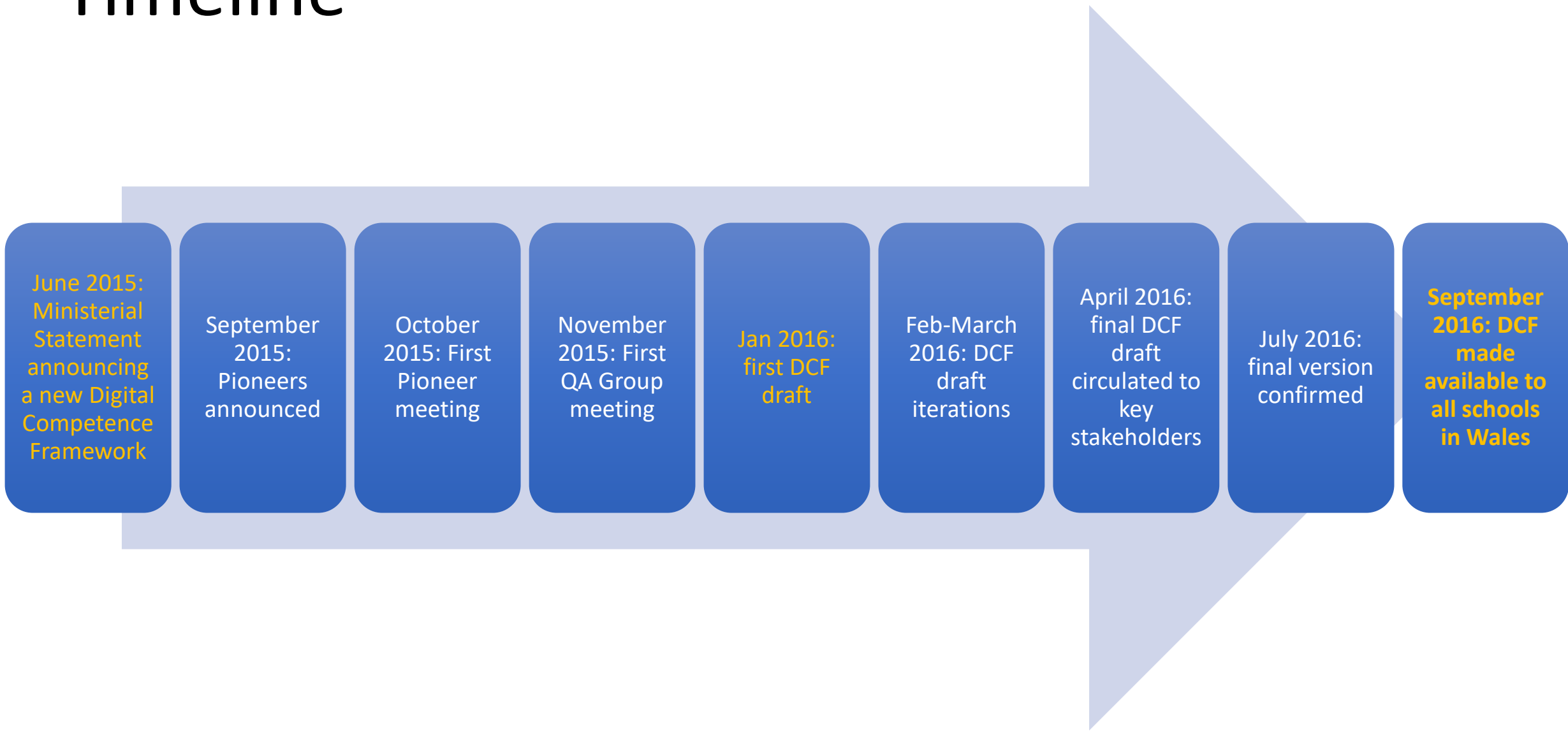http://gov.wales/docs/dcells/publications/150225-successful-futures-en.pdf

"So I'm pleased to announce that I'm going to task my officials to work with leading schools, regional consortia and experts from higher education and industry to build a Digital Competence Framework to be available for schools by September 2016. I know that there are already schools that have grasped this agenda and are leading the way in Wales. To harness the work of these leaders, I am asking our regional consortia to identify a small group of practitioners and their schools who are already leading this agenda in Wales to design and develop the new Digital Competence Framework – drawing on their own experiences and international best practice."

Huw Lewis AM
Minister for Education & Skills
Ministerial statement (June 2015): http://gov.wales/about/cabinet/cabinetstatements/previous-administration/2015/digitalcompetenceframework/?skip=1&lang=en

Timeline

June 2015: Ministerial Statement announcing a new Digital Competence Framework

September 2015: Pioneers announced

October 2015: First Pioneer meeting

November 2015: First QA Group meeting

Jan 2016: first DCF draft

Feb-March 2016: DCF draft iterations

April 2016: final DCF draft circulated to key stakeholders

July 2016: final version confirmed

September 2016: DCF made available to all schools in Wales

Methods/data

- Semi-structured focus group interviews with sample of stakeholder pioneer teachers (n=4), all strand leads in DCF > *separate iterative open thematic* coding > *Sustained discussion promoted inter-coder agreement or 'interpretive convergence' (Saldana, 2009, p.27)*

- Data from Welsh Government online *DCF Professional Learning Needs Tool* (n=124 schools; 252 teachers)

- Data from university case study of large local authority online survey (primary n=104; secondary n=9; special n=4)

Sample – case study LA

		Please select the type of school you work in from the list below:			
		Primary School	Secondary School	Special School	Total
Please indicate your gender:	Male	26	4	2	32
	Female	78	5	2	84
	Total	104	9	4	**116**
Please select your age range:	20-25 years	11	1	0	12
	26-30 years	20	0	0	20
	31-35 years	20	3	1	24
	36-40 years	19	3	0	21
	40 + years	34	2	3	39
	Total	104	9	4	116
Please indicate the number of years you have been teaching:	0-5 years	26	1	0	27
	6-10 years	24	1	1	26
	11-15 years	21	5	1	26
	16-20 years	22	2	1	25
	21-25 years	7	0	1	8
	More then 25 years	4	0	0	4
	Total	104	9	4	116
Please indicate the number of schools in which you have taught:	1	28	2	0	30
	2	26	4	2	31
	3	17	1	1	19
	4 or more	33	2	1	36
	Total	104	9	4	116

Case study LA – Autumn term 2016

		Please select the type of school you work in from the list below:			Total
		Primary School	Secondary School	Special School	
Understanding - CITIZENSHIP Please indicate your level of agreement with the following statements... - I fully understand the requirements of the CITIZENSHIP strand	Strongly Agree	10	0	1	11
	Agree	51	5	2	58
	Neither Agree nor Disagree	22	3	0	24
	Disagree	20	0	1	21
	Strongly Disagree	1	1	0	2
	Total	104	9	4	116
Understanding – INTERACTING & COLLABORATING Please indicate your level of agreement with the foll... - I fully understand the requirements of the INTERACTING & COLLABORATING strand	Strongly Agree	11	1	1	13
	Agree	48	2	1	51
	Neither Agree nor Disagree	26	4	1	30
	Disagree	16	1	1	18
	Strongly Disagree	3	1	0	4
	Total	104	9	4	116
Understanding - PRODUCING Please indicate your level of agreement with the following statements -... - I fully understand the requirements of the PRODUCING strand	Strongly Agree	11	2	1	14
	Agree	46	1	1	48
	Neither Agree nor Disagree	26	4	0	29
	Disagree	18	1	2	21
	Strongly Disagree	3	1	0	4
	Total	104	9	4	116
Understanding - DATA & COMPUTATIONAL THINKING Please indicate your level of agreement with the fo... - I fully understand the requirements of the DATA & COMPUTATIONAL THINKING strand	Strongly Agree	9	2	1	12
	Agree	40	1	1	42
	Neither Agree nor Disagree	31	4	1	35
	Disagree	20	1	0	21
	Strongly Disagree	4	1	1	6
	Total	104	9	4	116

I don't feel confident and need help to understand this and deliver this in my classroom.

I'm somewhat confident but require further support to deliver this in my classroom.
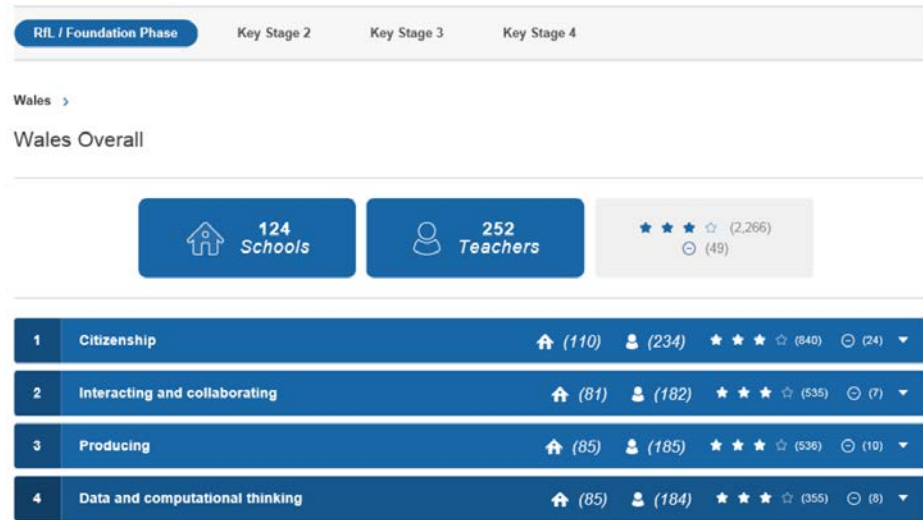
I feel confident and can deliver this in my classroom. I need to embed this further in my current practice.

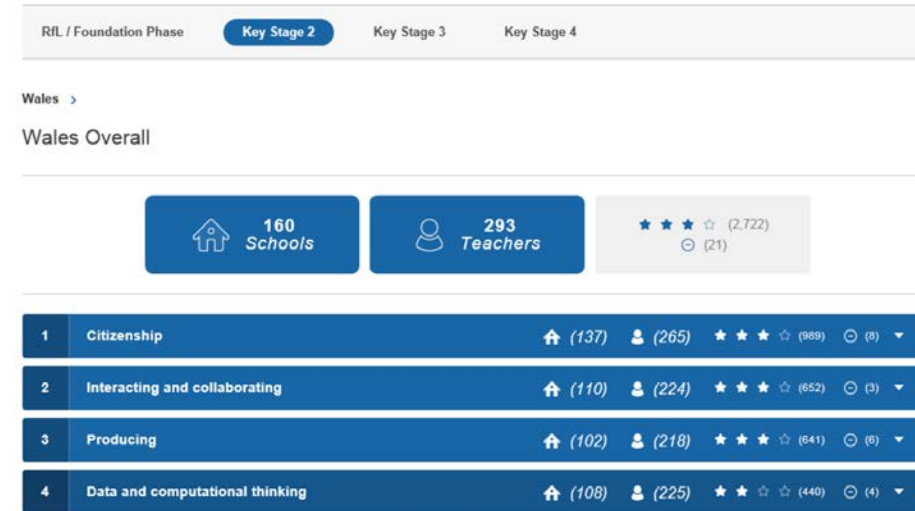I'm very confident and I can support other professionals to deliver this in their classrooms.

N/A – I don't need to cover this content.

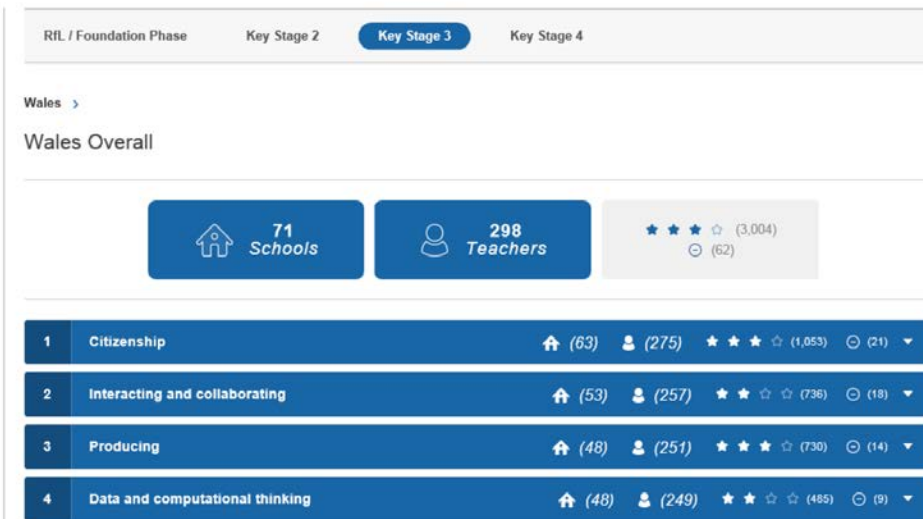# DCF Professional Learning Needs Tool Report (pan-Wales) – 30/08/17
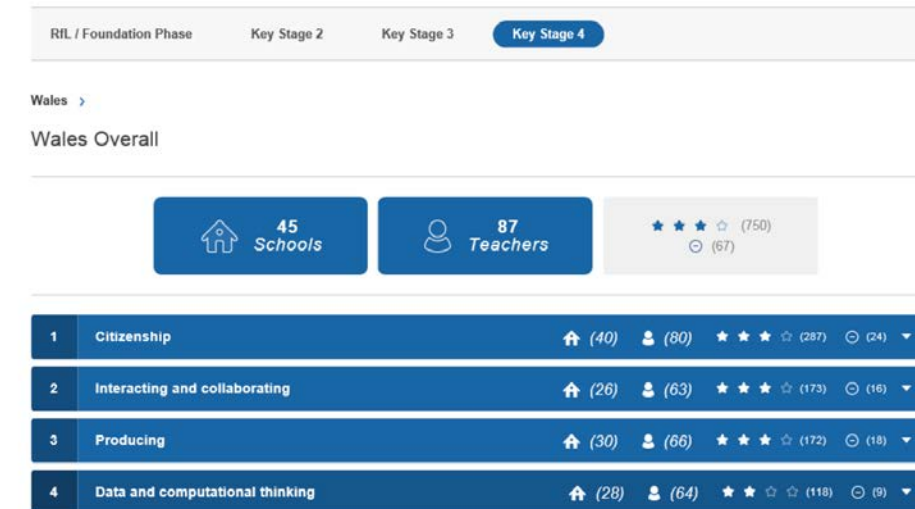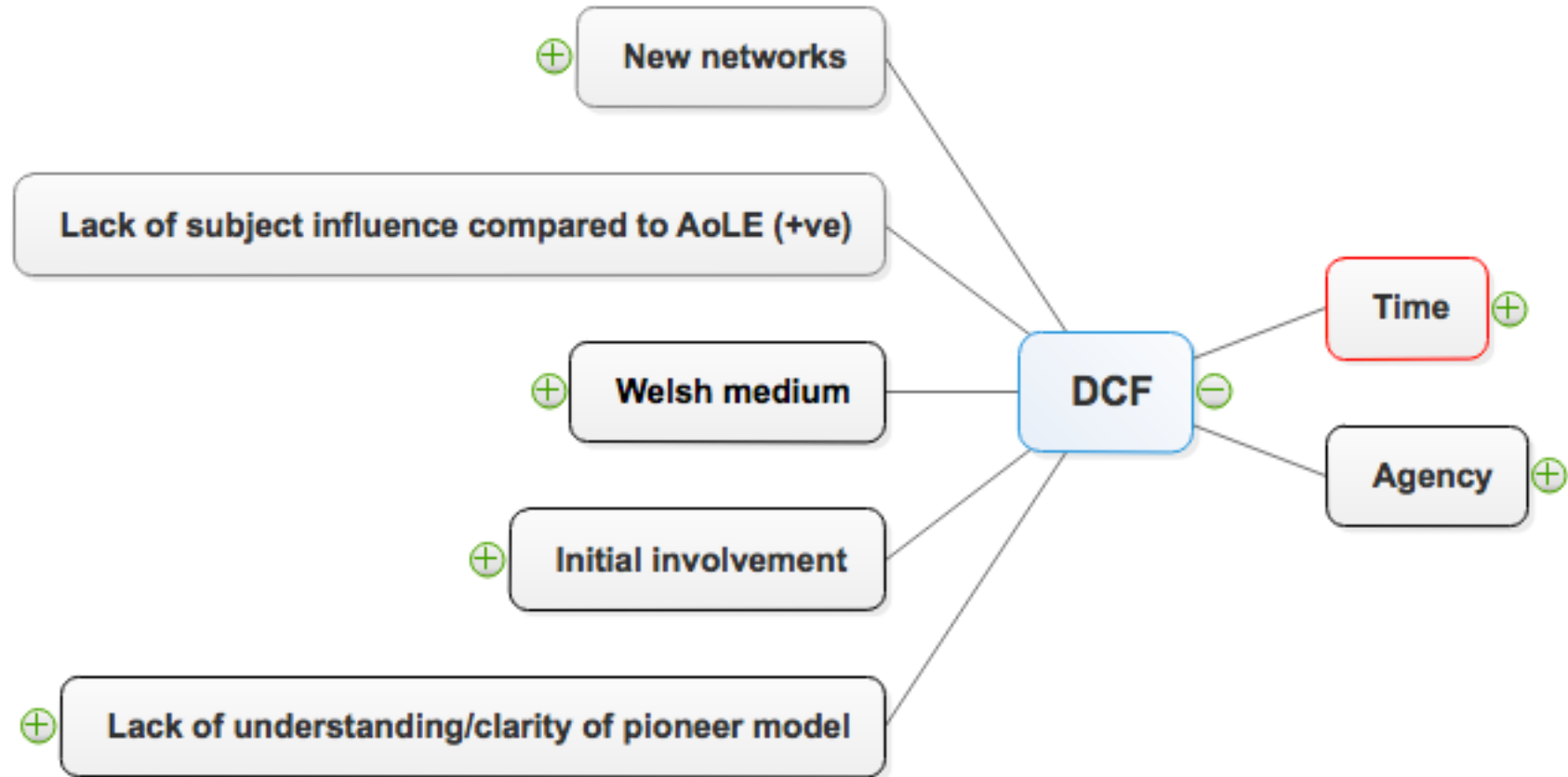
RFL / Foundation Phase

	RfL / Foundation Phase	Key Stage 2	Key Stage 3	Key Stage 4

Wales >

Wales Overall

124 Schools	252 Teachers	★★★☆ (2,266) ⊖ (49)

#					
1	Citizenship	🏠 (110)	👤 (234)	★★★☆ (840)	⊖ (24) ▼
2	Interacting and collaborating	🏠 (81)	👤 (182)	★★★☆ (535)	⊖ (7) ▼
3	Producing	🏠 (85)	👤 (185)	★★★☆ (536)	⊖ (10) ▼
4	Data and computational thinking	🏠 (85)	👤 (184)	★★★☆ (355)	⊖ (8) ▼

Key Stage 2

	RfL / Foundation Phase	Key Stage 2	Key Stage 3	Key Stage 4

Wales >

Wales Overall

160 Schools	293 Teachers	★★★☆ (2,722) ⊖ (21)

#					
1	Citizenship	🏠 (137)	👤 (265)	★★★☆ (989)	⊖ (8) ▼
2	Interacting and collaborating	🏠 (110)	👤 (224)	★★★☆ (652)	⊖ (3) ▼
3	Producing	🏠 (102)	👤 (218)	★★★☆ (641)	⊖ (6) ▼
4	Data and computational thinking	🏠 (108)	👤 (225)	★★☆☆ (440)	⊖ (4) ▼

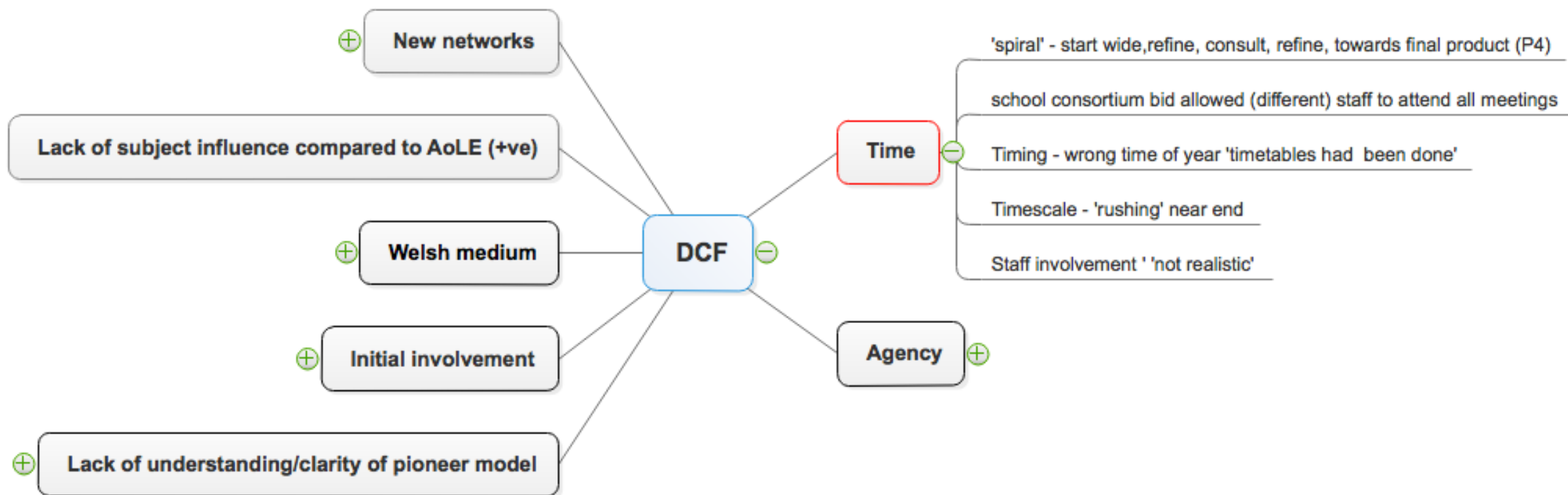## Key Stage 3

	RfL / Foundation Phase	Key Stage 2	Key Stage 3	Key Stage 4

Wales >

Wales Overall

71 Schools	298 Teachers	★★★☆ (3,004) ⊖ (62)

#					
1	Citizenship	🏠 (63)	👤 (275)	★★★☆ (1,053)	⊖ (21) ▼
2	Interacting and collaborating	🏠 (53)	👤 (257)	★★☆☆ (736)	⊖ (18) ▼
3	Producing	🏠 (48)	👤 (251)	★★★☆ (730)	⊖ (14) ▼
4	Data and computational thinking	🏠 (48)	👤 (249)	★★☆☆ (485)	⊖ (9) ▼

Key Stage 4

	RfL / Foundation Phase	Key Stage 2	Key Stage 3	Key Stage 4

Wales >

Wales Overall

45 Schools	87 Teachers	★★★☆ (750) ⊖ (67)

#					
1	Citizenship	🏠 (40)	👤 (80)	★★★☆ (287)	⊖ (24) ▼
2	Interacting and collaborating	🏠 (26)	👤 (63)	★★★☆ (173)	⊖ (16) ▼
3	Producing	🏠 (30)	👤 (66)	★★★☆ (172)	⊖ (18) ▼
4	Data and computational thinking	🏠 (28)	👤 (64)	★★☆☆ (118)	⊖ (9) ▼

Sample - interviews

Participant	Age	Gender	Welsh medium	School type	Teacher role	DCF role
Participant 1	51	M	Y	Secondary	Head of ICT/CS; School Digital Competence Lead	Strand lead; Welsh medium representative
Participant 2	47	M	Y	Secondary	Headteacher	Strand lead; Professional Learning sub-group
Participant 3	37	M	N	Secondary	School Digital Learning/CPD Lead; CS/Physics teacher	Strand lead; Professional Learning lead
Participant 4	31	M	N	Primary	Deputy Head	Strand lead

- All have had previous Welsh Government or local authority roles e.g. IT adviser, Hwb adviser.
- All are still involved with DCF rollout or wider curriculum development e.g. AoLE Pioneers.
- All have previous ICT/digital experience – either as a teacher or in a school-level role.
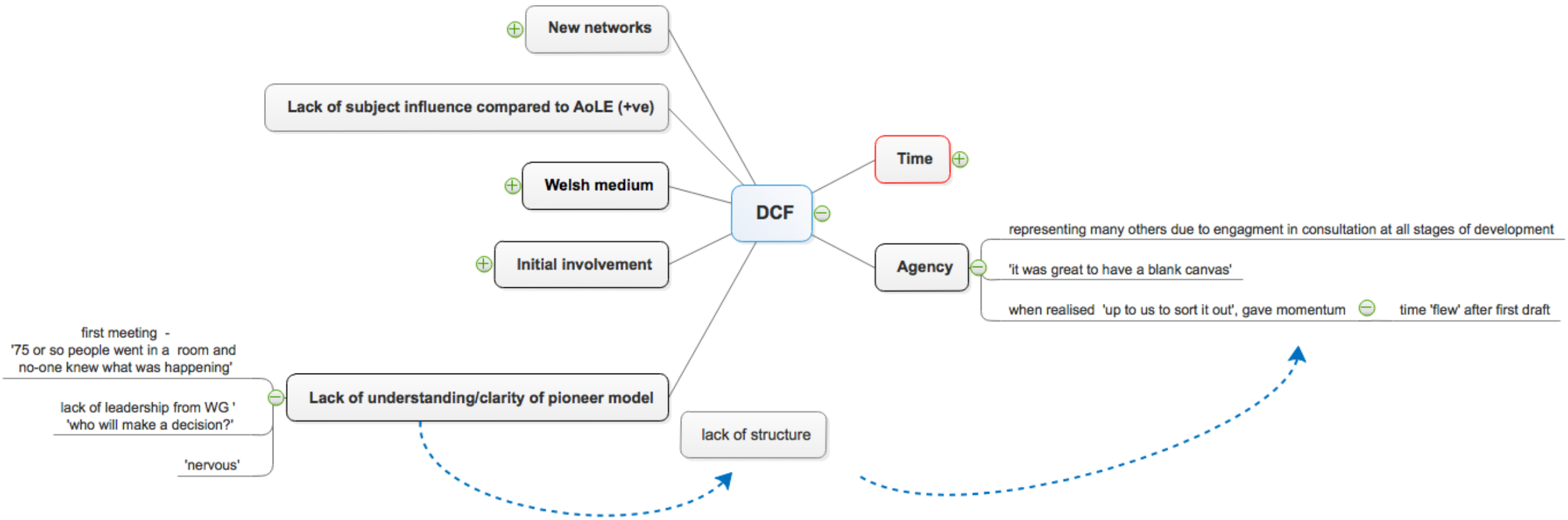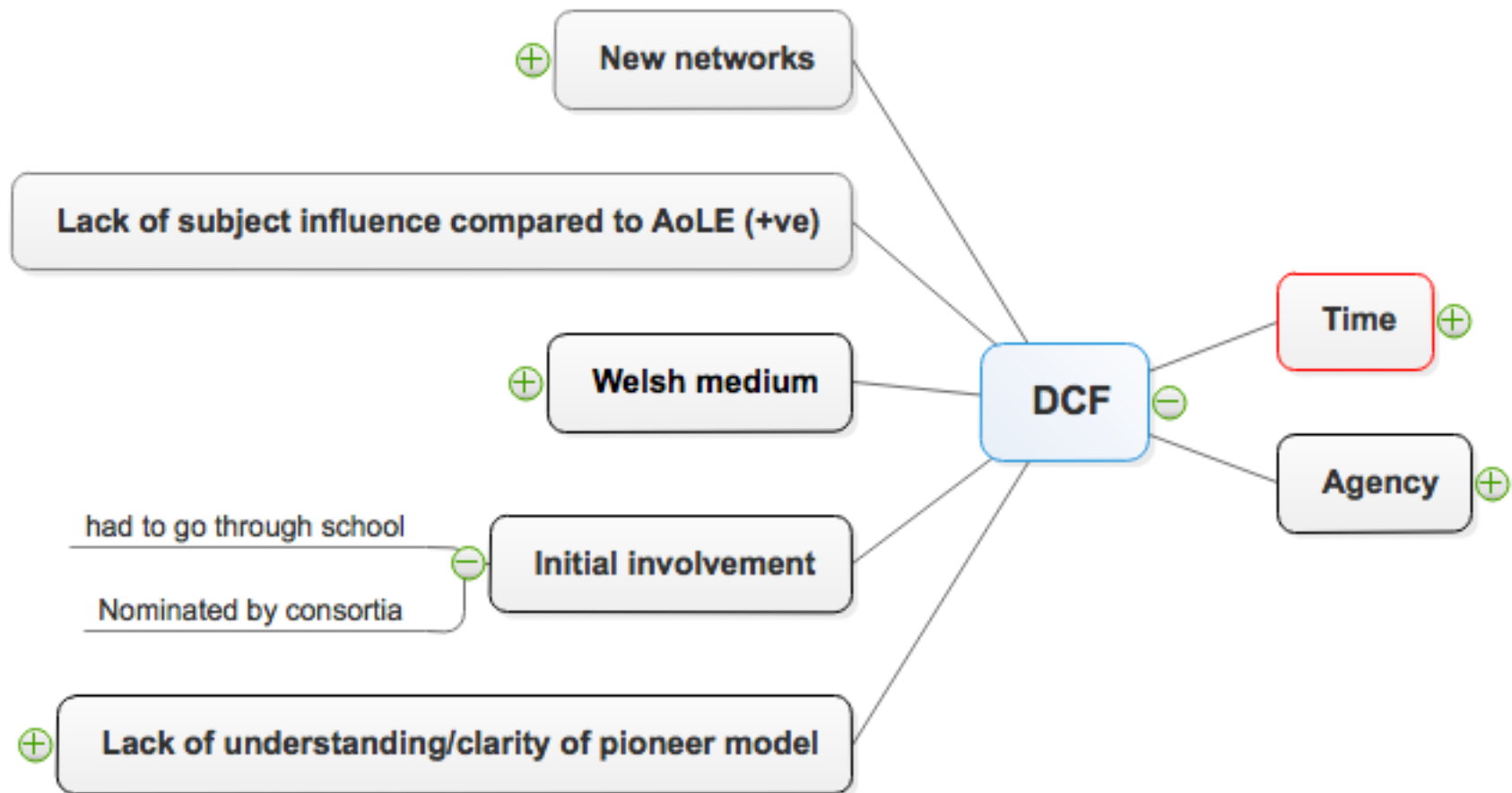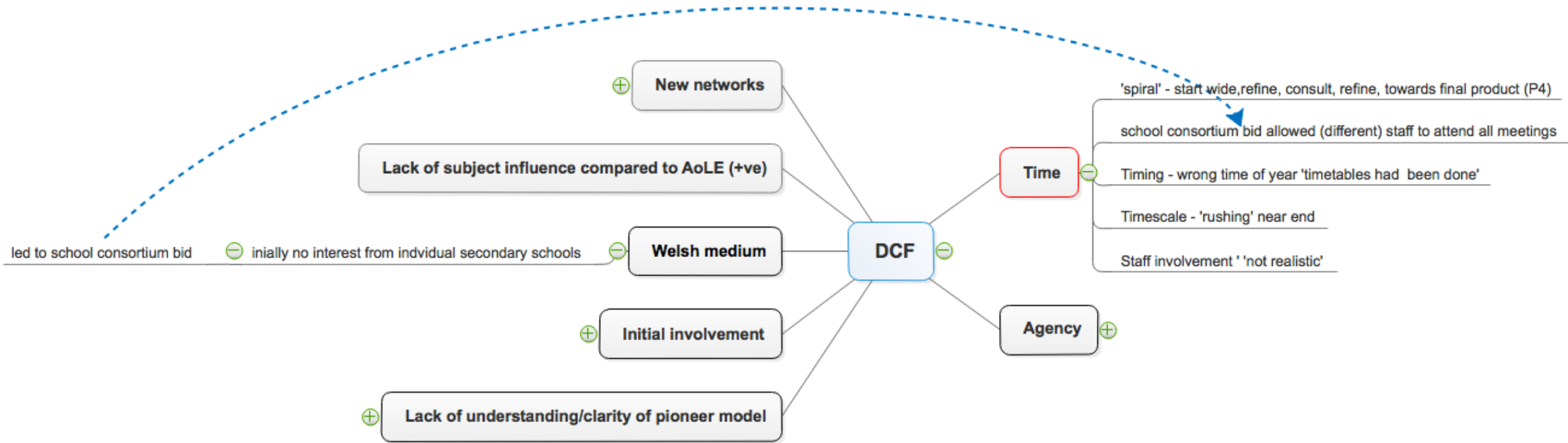
New networks

Lack of subject influence compared to AoLE (+ve)

Welsh medium

Initial involvement

DCF

Time

Agency

Lack of understanding/clarity of pioneer model

first meeting -
'75 or so people went in a room and
no-one knew what was happening'

lack of leadership from WG '
'who will make a decision?'

'nervous'

New networks

Lack of subject influence compared to AoLE (+ve)

Welsh medium

Initial involvement

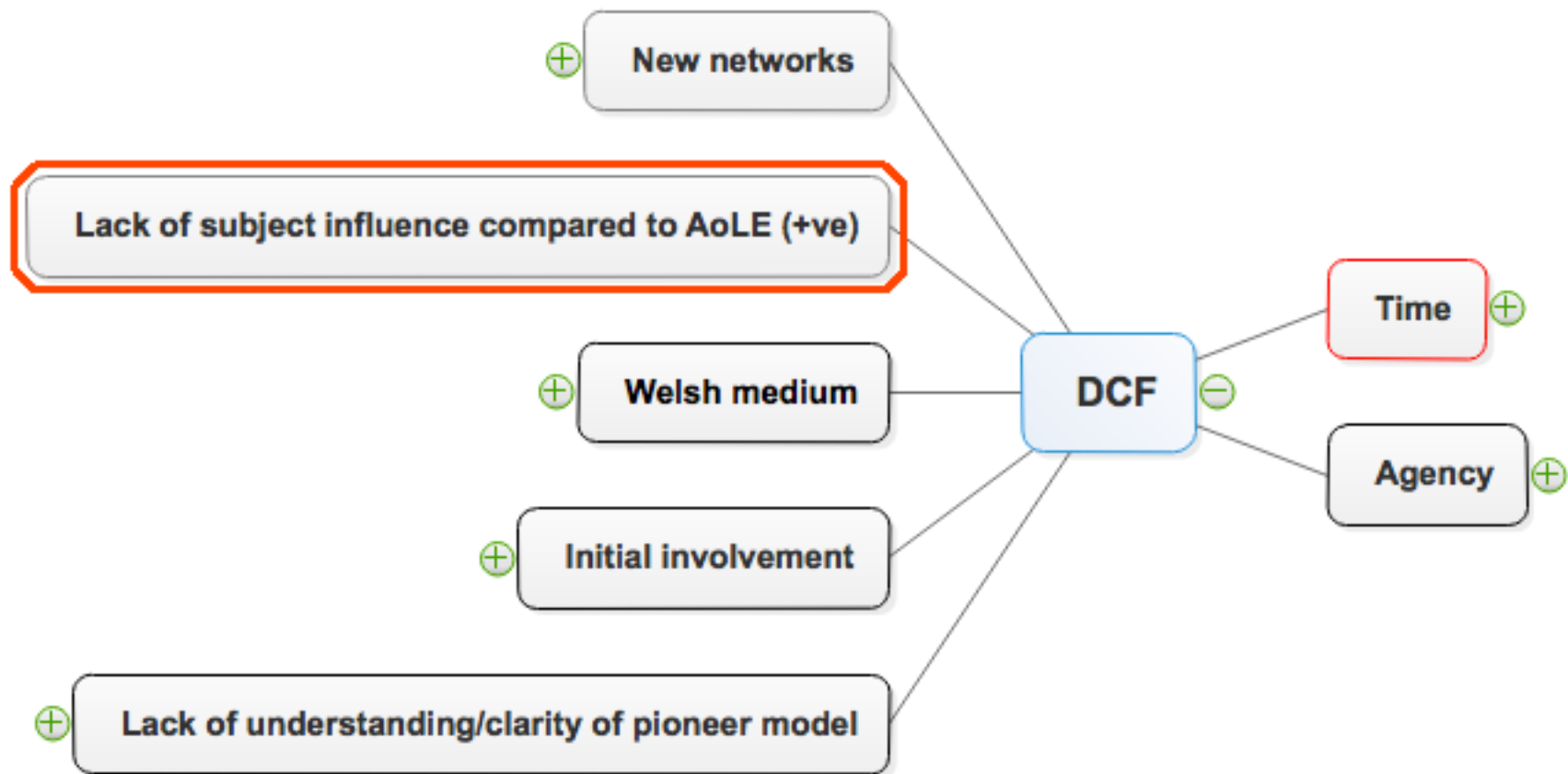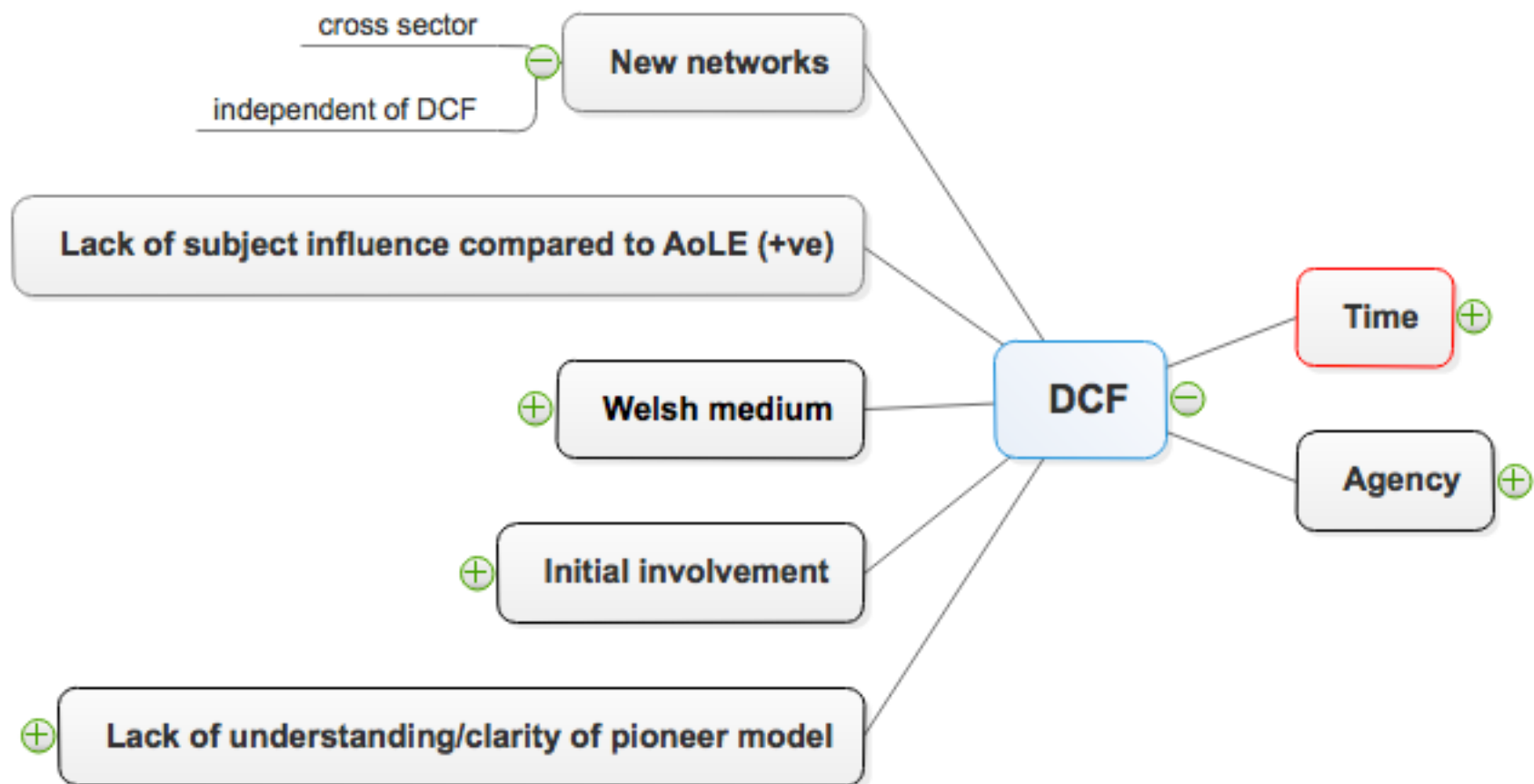Lack of understanding/clarity of pioneer model

DCF

Time

Agency

Discussion – Pioneer model

- 'I think the outcome proves it works.' (P2)
- Unintended positive consequences – additional networks formed, independent from DCF, including primary/secondary
  - ' The opportunity to network with others schools and work across sectors has been fantastic … the pioneer model has established networks almost because we were forced to work together initially … my school is far richer from having been part of this work. .. We are a small enough nation for this to work. It works!' (P2)
- Role of facilitator –
  - dilemma between not offering content/ideas vs potential lack of direction
  - Need to be bi-lingual
  - Change during process
- Hard for pioneers to see overview of whole Pioneer process - lack of communication with AoLE groups - 'where is this going to sit?' (P1)

The future?

- Explore views/experience of other stakeholders in DCF process
- Explore views/experience of Pioneers in AoLEs
- Challenge of *Computational Thinking/Data Literacy* strand (from LA sample and interviews)
- Broad exemplification of the DCF across the six AoLEs

Contact details

Professor Tom Crick
tcrick@cardiffmet.ac.uk

Professor Gary Beauchamp
gbeauchamp@cardiffmet.ac.uk

🐦 @ProfTomCrick

🐦 @profgaryb

REFERENCES

Arthur, S., Crick, T. and Hayward, J. (2013). "The ICT Steering Group's Report to the Welsh Government".

Beauchamp, G. and Jephcote, M. (2016) 'Teacher Education in Wales: towards an enduring legacy' in Beauchamp *et al Teacher Education in Times of Change*. Bristol: Policy Press. pp.109-124

Brown, N., Sentance, S., Crick, T. and Humphreys, S. (2014). "*Restart: The Resurgence of Computer Science in UK Schools*". ACM Transactions on Computer Science Education, vol. 14, no. 2, pp. 1–22.

Crick, T. and Moller, F. (2016). "*A National Engagement Model for Developing Computer Science Education in Wales*", in Proceedings of 9th International Conference on Informatics in Schools (ISSEP 2016).

Donaldson, G. (2015). "*Successful Futures: Independent Review of Curriculum and Assessment Arrangements in Wales*". Cardiff: WG

Saldana, J. (2009) *The Coding Manual for Qualitative Researchers*. Los Angeles, CA: Sage.

Welsh Assembly Government (2003) Iaith Pawb: A national action plan for a bilingual Wales (Cardiff:WAG)

Welsh Government (2016). "*Learning Wales: Digital Competence Framework*". Cardiff: WG