

Fit for the Future Education in Wales

WHITE PAPER FOR DISCUSSION

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1. Introduction & Objectives

We are all aware that the world is changing, perhaps more quickly than at any time in living memory, and that these changes will have profound implications for the future of work, community and wellbeing. It's probably impossible though, to work out exactly what form these changes will take, and then how we should prepare ourselves, our organisations and our places to protect ourselves and take advantage of new opportunities. Nevertheless, we know they will be both transformative and ongoing.

What we *do* know is that our ability to react flexibly and positively to rapidly changing workplaces and lifestyles will be very important in protecting our wellbeing and prosperity. We also know that having the requisite personal tools will improve our ability to cope. In the past we have been encouraged to think about our own abilities in terms only of qualifications. Once we had the right qualification, we could slot into our position in society (having what economists call the right level of 'human capital') and would perhaps be finished with learning for life. This is no longer the case, and this approach to learning and personal development is no longer enough.

Succeeding in a technology-dominated and ecologically challenged world will need continual adaptation to new pressures, opportunities and contexts. We will need to be able to digest, understand and respond to very complex environments. The world of work is likely to move (even more) away from formal, secure and longstanding jobs and towards less structured and self-directed employment, involving perhaps multiple sources of income and requiring much more varied knowledge and individual agency. Using public and private services will require similar 'nous', for example with the range of information available for free on the internet changing the ways we interact with GPs and with YouTube supplementing (or even replacing) school education. We will need to learn for much longer, and much more widely, and to remove the distinction between work-related qualifications and skills, and our personal competencies, interests and behaviours. We need to understand why we learn, and *learn how to learn* – in different contexts, for different reasons, and across all our lives.

Wales' ground-breaking legislation the *Well-being of Future Generations (Wales) Act 2015* ("WFG Act") not only requires us to think and plan for the future, it also gives us the means to envisage a different type of Wales. With this in mind, we here suggest a distinctive Welsh

approach to compulsory state school education that gives all our future citizens the best chance to flourish. The idea is not to critique current structures or performance by comparing with other places, but rather to think about what parts of Wales' educational structure are already fit for future purpose, those which need to change – modestly or radically – and whether anything should be wiped away or indeed invented whole.

We do not repeat here in detail the known and unknown elements of future economy, society and environment. Much has been written on this subject from a global and UK perspective, and the Digital Innovation Review undertaken by Prof Phil Brown for the Welsh Government fills many of the blanks and provides an extensive document set and reference list¹. Instead we move to the stage of suggesting what practical steps might be taken – or at least investigated and assessed in depth – to better prepare Wales for coming challenges. Given the uncertainty of the future landscape we of course run the risk of being proved wrong in some of our assumptions and pronouncements. But if, as Lincoln said, the best way to predict the future is to shape it, then the analysis and prescriptions contained herein might be of some use to a Welsh public sector charged with the delivery of policy and services in this changing world.

We are lucky in Wales in that we have, over recent years given much thought to what a future Wales could and should look like, with the national conversation on 'The Wales we Want' leading to the extensive debate around the formulation of the WFG Act. This WFG Act provides a solid basis for the following discussion on future skills, and for wider discussions on how Wales responds to upcoming challenges. It is the role of the Future Generations Commissioner to act as 'the guardian of the interests of future generations' and hence to raise fundamental questions about what future we want for our young people, how this might be achieved, and what might obstruct or indeed drive us towards it. Given the force and intent of the Act, and the nature of the subject matter and timescale for change, we cannot help but be radical.

2. Restructuring Compulsory State Schooling in Wales

2.1. Where are we?

Currently, schoolchildren in Wales experience a Foundation Phase (to age 7) then two more 'Key Stages' which take them to Year 8 or 9 (in secondary school) where they begin GCSEs and / or vocational courses with an examination-based 'exit' in Year 11. At this stage, apart from pupils who leave education, they will either take A-levels or vocational qualifications, either in school or a Further Education (FE) College.

Figure 1 The Curriculum Journey

2014	Huw Lewis announced that Prof Graham Donaldson would lead a curriculum and assessment review
2015	Donaldson Review published
2019	Feedback sought on draft curriculum for Wales 2022
2020	Publication of new curriculum for Wales 2022
2022	Staged implementation to 2026
2027	First sitting of new age 14-16 qualifications

This system is changing in 2022 as the government adopts a new curriculum² based on the recommendations of Professor Graham Donaldson. The curriculum aims to create:

- ambitious, capable learners, ready to learn throughout their lives
- enterprising, creative contributors, ready to play a full part in life and work
- ethical, informed citizens of Wales and the world
- healthy, confident individuals, ready to lead fulfilling lives as valued members of society.

It will have 6 'Areas of Learning and Experience (AoLEs).

- Expressive arts.
- Health and well-being.
- Humanities (including RE which should remain compulsory to age 16).
- Languages, literacy and communication (including Welsh, which should remain compulsory to age 16, and modern foreign languages).

- Mathematics and numeracy.
- Science and technology

Additionally, there is a cross-cutting focus in literacy, numeracy and digital competence, and the curriculum is positioned as a ‘continuum of learning’, rather than split into key stages. The Welsh Government stresses the autonomy of teachers to develop learning approaches. and emphasises that the new curriculum learns from the strengths of the Foundation Phase that was rolled out in Wales from 2004.

The primacy of school and teacher autonomy in content development requires deep culture change on the part of teachers, Welsh Government and regulatory bodies, such as Estyn. The Welsh Government “Education in Wales: Our national mission 2017-21”²⁵ highlights the challenge ahead for each tier of the education system in Wales, identifying four “enabling objectives” to deliver the curriculum, including:

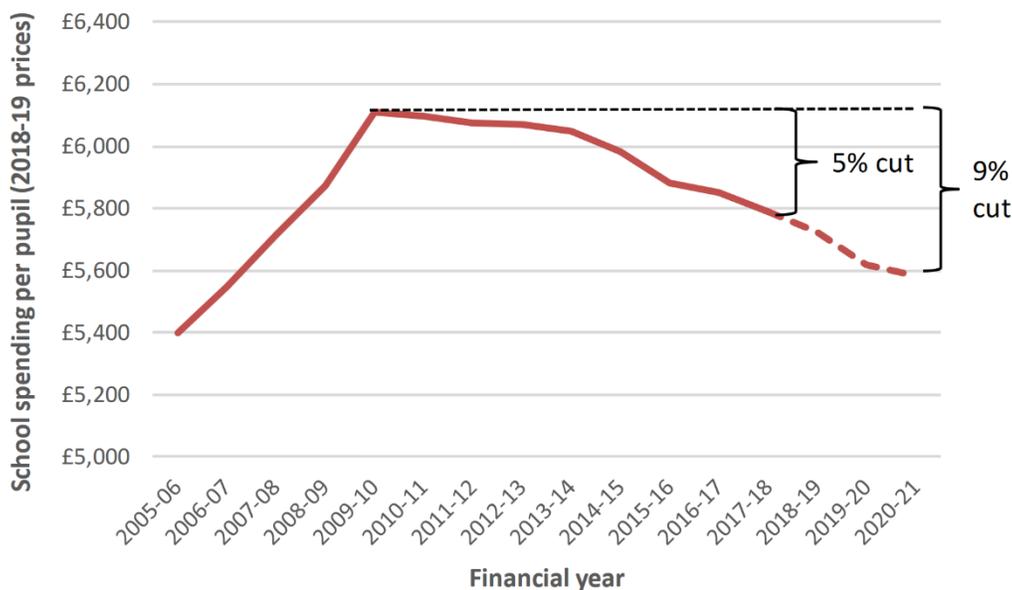
- Developing a high-quality education profession.
- Inspirational leaders working collaboratively to raise standards.
- Strong and inclusive schools committed to excellence, equity and well-being.
- Robust assessment, evaluation and accountability arrangements supporting a self-improving system.

Whilst attention is being given to professional learning and leadership alongside the new curriculum, the time for this culture change to embed is very short and response to the new curriculum from within the teaching profession has highlighted that, outside the Pioneer Schools, the need for further clarity on the approach remains³.

Other concerns within the profession related to process and implementation, and with some initial confusion around the concept⁴. Underlying these issues may be a worry about the level of resources available to teachers to develop and deliver the new curriculum, with little sign of a serious injection of resources at school-level and across the system prior to the 2022 launch; limited involvement of other parts of Wales’ educational system in Wales in developing content or training teachers; and with the Welsh Government previously criticised for not following through worthy policies with real action – the dreaded ‘implementation gap’. Although school spending is decided at local authority level, reduction in local authority budgets overall following

Austerity will mean a fall in spending per pupil of an estimated £500 – or 9% in the decade from 2010-11 to 2020-21⁵.

Figure 2 Per Pupil Spending in Wales



Source: *Sibieta, 2019*

This resource-heavy transformation occurs in a context then where school education in Wales arguably requires additional resources even to stand still. Comparisons between Wales and other parts of the UK in terms of pupil performance is not easy, post-devolution, even where qualifications are notionally shared (such as GCSEs). However, whilst recognising these difficulties and the reliance on more contentious measures (like PISA), it is unlikely that Welsh school education is any better than our UK comparators – indeed it appears worse for maths and English^{6,7}. Given Wales' poorer socio-economic characteristics overall, our job here may however be somewhat harder than in Scotland or England⁸.

2.2. Curriculum issues

By 2022, the first students in Welsh schools will begin to experience the new, more integrated curriculum developed by practitioners and experts, including Prof. Graham Donaldson, who developed the initial rationale and proposed model for change. The curriculum has a number of fundamental characteristics which may provide students with future-useful skills and knowledge, at least in comparison to existing approach. Amongst these are:

- A holistic approach to the world of technology, covering ‘citizenship’ aspects, appropriate interaction, digital creation and data analysis⁹, important when the digital divide between those who do and do not have competence with (or access to) various digital technologies is recognised as increasingly important;
- An explicit focus on *enterprising and creative learners* that straddles the worlds of ‘life and work’. This will be important if work becomes more fragmented and self-directed (via technology), and if personal and work identities blur¹⁰.
- If implemented, a focus on learning through play carried forward from Foundation Phase would enhance the creativity of Wales’ future adults – and almost all future technology scenarios emphasise the importance of human creativity¹¹.
- An explicit ‘Area of Learning Experience’ that focusses on health and wellbeing; again a potentially important lever to move behaviours in response to long-term increasing mental and physical health issues in Wales.
- The focus on Welsh language teaching in all Welsh schools – no longer as a second language – is likely to unlock some educational and longer-life benefits strongly associated with bilingual/dual language education¹².
- More widely, the launching of the new Curriculum locks the Government into an approach to education that is, barring unlikely upheaval, set for the medium term, whilst allowing significant flexibility of content and approach to respond to changing contexts. This is important in a national education system suffering ‘reform fatigue’¹³

Teachers and others interviewed about the new curriculum by the Wales Institute of Social and Economic Research, Data and Methods (WISERD) research centre at Cardiff University recognised it provided ‘future-relevant’ opportunities to develop an engaging and interesting pedagogy, improve social mobility for pupils and, critical for poorer parts of Wales, improve motivation¹⁴. The opportunity to foster a ‘lifelong’ approach to learning was also recognised– of huge importance for future skills.

It is fair to say however that these benefits will only be realised if the curriculum is implemented fully, and with teachers both prepared (personally and professionally) to deliver its challenging requirements. It is notable in this regard that the generally well-received Foundation Phase implementation involved a considerable increase in classroom practitioners (notably assistants) – necessary to deliver a more engaging, wide ranging and pupil-centred approach¹⁵. So far there is no sign of any similarly large frontline resource injection for the 2022 implementation.

This is particularly concerning as the new curriculum places (even) more emphasis on teacher autonomy and teacher-developed content, requiring in significant re-learning or new learning – in both technique and content. Largely new elements that will be tackled for example include themes of digital, numeracy and literacy (at least in a cross-cutting fashion), a greater focus on skills (over content and knowledge), and the need to link far more explicitly to the ‘real world’ of life and work. Additionally, the requirement that the curriculum create ethical and ‘aware’ learners may be something new, unfamiliar and challenging to some teaching professionals.

Figure 2 The Curriculum-Future Generations Fit

Ways of Working	
Long Term	Curriculum directly addresses need to respond to future work, digital and social contexts in its stated rationale. Digital a strong focus throughout.
Prevention	Clear understanding that school years need to equip students with the skills, competencies, attitudes and behaviours that will serve them as adults.
Integration	Clear attempt to develop cross cutting themes, language and approach. Unclear yet as to how much integration across AoLEs will be possible in practice across all schools (given resource constraints).
Collaboration	Emphasised in a number of places within the curriculum. A collaborative approach - at least between WG and Pioneer schools - adopted in curriculum development
Involvement	Limited so far to a sub-set of teaching profession plus experts - possibly justified at early stage. Extended development phase does allow thoughtful consultation during 2019.
Goal Areas	
A prosperous Wales	Renewed and cross curriculum focus on areas of recognised economic importance [literacy, numeracy, digital], especially relating to those more challenged in the workplace. Focus on work and careers implications of all AoLEs.

<i>A resilient Wales</i>	Notion of 'ecosystems' absent from Humanities AoLE, but with perhaps some opportunity to cover, or cross-reference from Science & Technology which specifically covers the implications of Welsh environmental conditions.
<i>A healthier Wales</i>	Numerous elements important for personal physical & mental health (and resilience) identified in Health & Wellbeing AoLE. including a strong focus on impact of digital and technology on personal/psychological health.
<i>A more equal Wales</i>	Strong underlying framing around ethical awareness & issues of equity. Some mention of poverty, albeit not specifically in a Welsh context (Humanities)
<i>A Wales of cohesive communities</i>	Strong underlying framing (and Humanities suggested content) around ethical and cultural awareness and tolerance, in Wales and elsewhere.
<i>A Wales of vibrant culture and thriving Welsh language</i>	Strong (and globally contextualised) focus on Welsh culture and creativity in Expressive Arts AoLE. The aim being a generation actively and democratically engaged in their culture. Parallel to curriculum emphasis on Welsh language education from 2022.
<i>A globally responsible Wales</i>	Impact of Wales' industry (if not consumption) on global environment and climate directly addressed in Science & Technology. Relevant issues also addressed somewhat in Humanities

These elements will however be delivered in a context where the latest Estyn report¹⁶ identifies shortcomings in literacy, numeracy and ICT teaching in a very significant proportion of Welsh schools. A third of all Welsh schools do not have a co-ordinated approach to literacy development. A third of primary schools in Wales do not teach ICT effectively, and a third do not teach numeracy well (in some cases, these may be the same primary schools). ICT skills are generally not well applied across the curriculum, and it is unclear how far schools are able to present a wide range of learning content of digital origin, or using digital delivery. Whilst the focus of the new curriculum on these areas could improve teaching markedly, it is notable that Estyn identifies a lack of teachers' confidence and knowledge as the main reason behind poor performance – and further that these issues reach back to initial teacher training. More fundamentally, the way in which digital technologies in particular are used, and for what purposes will always differ between mature (professional) adults and young people: some elements of the curriculum may simply require different practitioners to be taught effectively¹⁷.

Without then, a focus on significantly upskilling teachers' capability and confidence in these areas, and in ensuring teacher training processes keep pace with curriculum development, Wales' schoolchildren – or at least those taught in the less effective schools – are unlikely to be

well equipped for the challenges of the future economy and society. Similar arguments can be made in disciplines which are largely new. For example, teaching on business and economics is currently largely absent from Welsh schools outside of the existing (revised in 2017) WJEC Business GCSE¹⁸, and *ad hoc* enterprise/entrepreneurship projects. Expecting humanities teachers – the vast majority with no economics training – to confidently deliver business and economics content within their AoLE without significant additional training is unfair and unrealistic (and similar arguments might be made around citizenship or Welsh history and culture for example).

Without this content however, and even with the WFG Act providing a core framing, the new curriculum will fail to prepare pupils for the *current* (Welsh) world of work, let alone a future one¹⁹; Few teachers will have direct, personal experience of multiple professions, or the gig economy and fragmented and insecure work to call upon in preparing teaching; all elements that are likely to characterise the working life of most of their pupils.

2.3. The Curriculum and age-16 Qualifications in Wales

Whilst it is early days for considering the appropriate assessment under the new curriculum, a number of underpinning principles have emerged, including a focus on formative (rather than summative) feedback, a move away from age-based gateways, and the separation of pupil assessment from school and teacher accountability²⁰. These precepts, whilst welcome, do not explicitly cover those external assessments for qualifications at age-16. Qualifications Wales is consulting in 2019 around new qualifications standards for the 14-16 age range to better fit the new curriculum. This involves a 'national conversation' around how such qualification standards should be developed.

Fitting qualifications to future skills (and 'life') needs is clearly a difficult process, constrained by both uncertainty around future contexts, and by current educational structures and resources that are clearly inadequate. In Wales this may be however a slightly easier task: unlike in most other countries, an earlier wide-ranging national conversation has clarified the seven goal areas that will define a sustainable Wales where the wellbeing of future generations is safeguarded. Whilst, then the new curriculum sets the pedagogical basis, and requires personal (and competence) development for pupils for the new qualifications, the WFG Act helps us understand how pupils might apply their competence as adults. We are clear here that whilst we suggest an approach that is consistent with the WFG Act, *we see no tension or obvious downside for pupils who eventually leave Wales to study, live or work*. It is clear that key future trends and challenges are not specifically 'Welsh', and the WFG goals and legal definitions, and a more explicit focus on future skills in qualifications more generally will prepare pupils better for their future, whether in Wales or elsewhere²¹.

The current position of Qualifications Wales (QW) has been set out in a letter to the Minister²². There is much to commend in the approach of QW which emphasises early and proactive engagement with the curriculum, an openness to change and a widely inclusive approach to development. These principles are in line with the WFG Act 'ways of working', and whilst there is no direct mention of the WFG Act, either in the QW letter or the Minister's response²³, the qualifications are placed to support the Welsh Government 'National Mission' for education which highlights the WFG Act as a framework (albeit with this Mission currently only stretching to 2021)²⁴. Arguably, however, with WFG Act setting out the overarching framework for all public sector activity in Wales, the Welsh Government might take more direct and obvious steps to

ensure the bodies it funds and directs have a clear understanding of the expectations of the Act, and where they fit within of the public sector delivery ‘jigsaw’²⁵. Similarly (but for a future report) funding for the FE and HE sectors might reflect the need to build a bespoke ‘continuum of learning’ across all ages, firmly based in the legal framework of the WFG Act.

It is notable that the new curriculum suggests that specialisms will be enabled at the highest progression stages (i.e. 14-16 years). The pedagogical basis for this approach needs some thought, especially if those specialisms match to existing disciplines, as this risks a ‘business as usual-tweaked’ approach to external qualifications, with a reinforcing effect on what is taught 14-16, based on minimising disruption and ensuring ease of delivery, rather than what structure and breadth actually advantages learners most for their futures,

In the letter from Qualifications Wales to the Minister, there is indeed an assumption that public (published), standardised exams at age 16 will persist (whether called GCSEs or something else). This is by no means a settled issue. Recent debate in England has highlighted that with fewer pupils now leaving education at this age, such qualifications are of limited benefit, with even the originator of GCSEs considering them outmoded – in their current form at least²⁶ – and some calling for the abolition of public exams at age-16 in total. The logic to retaining such exams, especially if they are to become de-facto indicators of pupil ability and school quality, deserves examination.

Such (usually exam-based) qualifications have problematic outcomes in the context of both the new curriculum and the development of competencies fit for the future of work and life, for example:

- Content must be clearly and consistently defined across all schools, will be unchanged for many years, and is difficult and time consuming to revise. It is unlikely therefore to remain topical and relevant in a rapidly changing world (and potentially limits the scope or incentive for teacher autonomy).
- From the age of 14 (or even earlier, at Year 9) students will be ‘taught to the exam’ (i.e. in many cases for *three full years*), likely displacing important but less assessable skills, competency and personal development;
- Learners are trained in (and rewarded for) displaying a relatively narrow set of competencies – recall, textual interpretation, process – rather than in how to respond to multi-faceted problems in complex environments;

- ‘Sets’ within which learners are placed at age 13/14 can be difficult to move between due to divergent content, meaning late developers may not be given the chance to shine;
- Learners can be guided to GCSE choices that fix their future learning with limited choice or involvement²⁷;
- ‘Gaming’ of the system occurs in schools to the detriment of students²⁸;
- Exams discriminate against those who cannot easily gain these abilities or replicate them in a pressured and artificial environment, an environment which is unlikely to be replicated or relevant in a future world of work let alone future life²⁹.

A number of current GCSEs of course have non-exam-based elements, although these are typically determined by the ‘applied’ nature of the subject (for example: Design & Technology, Art, Computer Science) rather than from an (explicit) desire to vary assessment methods.

Whilst there is a strong pedagogic argument to widen the assessment methods for 14-16 qualifications, we consider that Welsh Government should go further. Given the timescale (with Year 10 teaching beginning in 2025 for 2027 assessment), now is the time for a consideration of whether standardised, public qualifications for age-16 pupils in Wales are necessary, given the relatively small number of students who enter the job market at 16, and wider questioning of the role and usefulness of GCSEs in their current format³⁰³¹.

Given recent trends, and in a policy-devolved Wales in particular, the argument for a fresh look is even stronger. There are a number of reasons to keep such exams; for example: the current fashion for the aggregation of sixth-form education leaves many schools with GCSEs as their ‘exit’ qualification and, also, GCSEs are used by schools as a key signifier of educational quality for parents. But it is not clear if these benefits are significant or could not be achieved in other ways; in ways which do not skew school structures and approaches and limit wider pupils’ development as do public, standardised age-16 exams³². If this unique opportunity is not taken now to address the role and remit of qualifications in Welsh schools, we are failing to use the sustainable development principle and long-term thinking set out in the WFG Act and we may be left with an already-outdated structure for the next 30 years.

2.4. Fit for the Future Qualifications

Existing qualifications are, in the opinion of a range of people, not fulfilling the role required of them currently and are even less likely to equip children for embarkation into future lives and workplaces. Distilling the pieces of evidence that are known about future scenarios in digital, socio-demographic, ecological and climate terms³³, and framing our reaction in terms of the WFG Act, presents a number of characteristics that new or heavily revised qualifications might be expected to include.

“If education has moved up to 18, you have to ask yourself what are we testing at 16? Sixteen is no longer a departure for youngsters and very few go to work at that age.

“GCSE is no longer assessing performance at departure and over the course of the next ten years it will disappear because it won't have much of a purpose and the real test will be at 18 to show what you have done.”

Lord Kenneth Baker, 2015

There will be no doubt significant objections to some, or all of, the below hence why this paper is positioned as the start of a conversation and a draft for discussion. We should be discussing these statements (whether in agreement or disagreement) using reasoning based on explicit pedagogic and economic evidence; considering what is good primarily for pupils (rather than serving external stakeholders); and considering how our views are influenced by an ease of system management. Caution must be expressed by the bias of some practitioners too; some of whom are unable for good reasons (of training, experience or time) to have a holistic and topical knowledge of labour markets³⁴ and almost all of whom will by definition have had a traditional and successful academic educational route through university.

An additional point to make here is that there are already tools for assessing the quality and effectiveness of schools³⁵, and the system as a whole³⁶. We believe school quality should **not** be assessed, explicitly or by omission, by pupil qualifications and that the abandonment of standardised exams (together with an increased role for Estyn) will enable the breaking of this link. The job of preparing pupils for their future lives, in and out of work, by aligning curriculum and qualification is already complex enough. The following sections outline our suggested

qualification characteristics. It is notable that, internationally, even the countries and regions with recognised success in school education are realising the need to move to a more flexible, pupil-focussed approach³⁷.

2.4.1. *Inclusively Co-Created & Co-Delivered*

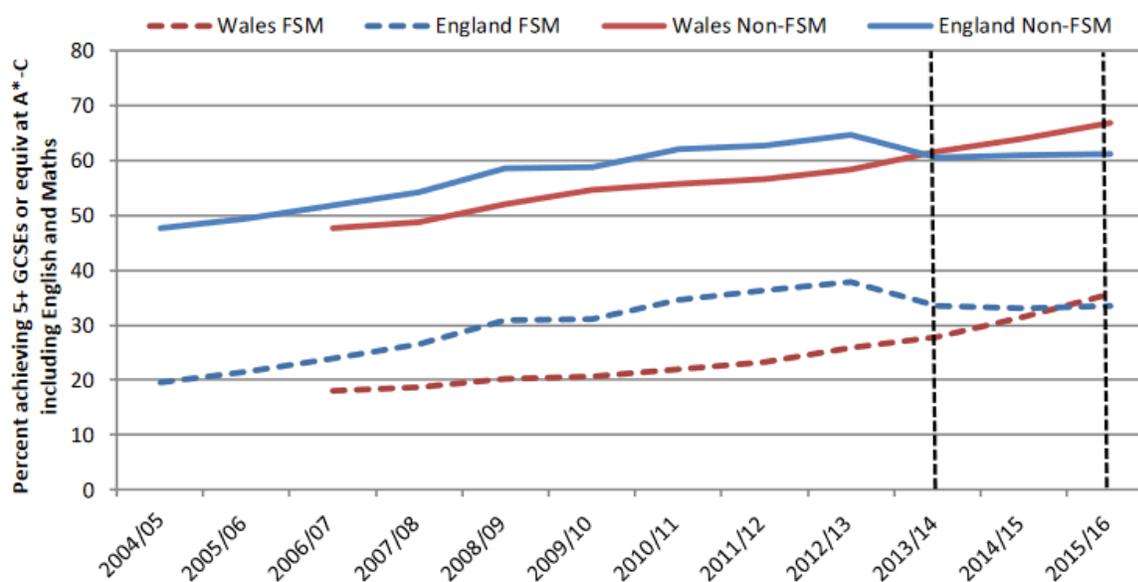
Whilst the WFG Act requires an integrated and inclusive approach to policy development, there are also clear benefits in both co-creating and, critically co-delivering new qualifications – the ‘co-’ elements here being the Wales-based businesses, cultural and arts organisations, the third sector, civic and public sector organisations with which (most) students will be engaging with throughout their lives. Criticisms of current GCSEs have included the lack of ‘employability’ exhibited by qualifying students, arguably then reinforced by many post-16 qualifications. The CBI has repeatedly called for more, and earlier employer engagement in schools to strengthen both academic and vocational learning. These elements are referred to in the draft curriculum for Wales 2022, albeit pitched as work-experience ‘visits’³⁸. We believe there is a strong case for 14-16 education to include significant time spent outside the school environment, experiencing the world of work and wider organisations, and exposing pupils to meaningful examples of what is meant by ‘employability’ across private, public and civic sectors³⁹ – thus in the medium and longer term benefitting Welsh business and organisations. The importance of non-school learning should be emphasised by assessment based on this learning phase, most suitably of a reflective and formative nature⁴⁰. We note that there is no longer a requirement for schools to facilitate work placements – a resource intensive activity, (although one which may have been difficult in areas where engaged businesses and organisations were thin on the ground) .

2.4.2. *Equal Treatment (or Integration) of ‘Academic’ and ‘Vocational’ Pathways*

England and Wales have vacillated in recent years between developing a robust vocational pathway for those aged 13/14 and defaulting back to GCSEs as the default option for those except the most academically challenged. Development of a vocational pathway worth the name has not been helped by perceived ‘gaming’ whereby vocational qualifications could count as multiple GCSEs, or by poor course specification and delivery. Vocational education in schools now attracts almost no serious policy attention^{41,42}. Meanwhile, students from disadvantaged communities – geographic, migrants and some ethnic groups – are more likely to end up undertaking vocational qualifications – or being placed in low-ability sets from which it is difficult to escape^{43,44,45}. Education under the devolved period has seen only a modest

narrowing of the (shocking) GCSE attainment gap between pupils from the more affluent and most deprived backgrounds often shown by pupils eligible for free school meals (Figure 3⁴⁶). A new curriculum will of itself **not** change this, or then progress towards the well-being goal of a more equal Wales, one which ‘enables people to fulfil their potential no matter what their background or circumstances (including their socio economic background and circumstances)’. A proper focus on the development of a qualification approach that delivers high-quality and truly employability-oriented qualifications across the range of material studied in schools, created and delivered with employers, together with assessment approaches that enable students to gain and display a wider range of skills may reframe this issue, a critical element under the WFG goal definition of *A More Equal Wales*⁴⁷.

Figure 3 The Free School Meals Attainment Gap



Source: Stats Wales, Key Stage 4 examination results (<https://statswales.gov.wales/Catalogue/Education-and-Skills/Schools-and-Teachers/Examinations-and-Assessments/Key-Stage-4>); GCSE and Equivalent Results, 2010, 2014 and 2016 (<https://www.gov.uk/government/collections/statistics-gcses-key-stage-4>)

2.4.3. Varied, Narrative and Asset-Focused Assessment

A large number of GCSE qualifications in Welsh schools are (with of course some exceptions) typically assessed at the end of a two- or three-year period by means of standardised written exams⁴⁸. A limited range of competencies are tested, focused on for example recall, linear rules-based problem solving and the understanding and explanation of written material. These competencies are unlikely to match well to future skills needs.

They ignore important inter-personal skills and personal development facets, have little scope for innovation, are un-reflective for students and reveal little about student progression during the programme of study for teachers.^{49,50} They penalise those with different competencies (such as creativity), or those who perform badly in pressurised exam environments. Whilst some GCSEs have practical elements, exams and written explanation are still a critical part of assessment. To give just one example, the current WJEC Food and Nutrition GCSE has learning objectives centred clearly on teaching children to cook and understand nutrition, but still requires a student to deliver extensive, grammatically correct, technically written prose in both examination and practical units of assessment.⁵¹ Additionally, when they are 13/14 years old, students often do not feel they have wide and informed choice of subject⁵². The resulting qualifications are not even considered fit for current purpose, let alone for the future. For Welsh qualifications to be truly inclusive and focussed on future skills that are likely to be relevant and applicable, assessments should be⁵³:

- far more varied in nature, oriented towards the communication/inter-personal, presentational, and practical skills that are increasingly important along the occupational ladder as well as for wellbeing more generally;
- Focused on the holistic issues young people are likely to encounter as adults as well as the skills and issues which they will need to understand to be responsible informed citizens of the future as articulated in the framework of The Wellbeing of Future Generations Act;
- In part formative, during programmes of study, to guide future learning (whether programmes are modular or linear);
- Embedded with ethical content that teaches pupils to appreciate their own and others' range of skills and talents both in relation to mutual respect within the classroom and a future civic society whose population understands and shares values;
- narrative in large part, for example a focus on student 'assets'⁵⁴ would help teachers better understand pupil needs, and potential employers, pupil interests and aptitudes⁵⁵;
- non-comparable across schools, hence depreciating their problematic role in school comparison;
- student centred and value-added⁵⁶ – primarily oriented to enhancing and revealing student development;
- not publicly published in a form which enables, or worse encourages, inter-school comparison.

Some of this of course already occurs in schools – not least as teacher commentary on annual school reports, and our suggestions largely mirror those highlighted in the new curriculum⁵⁷. It is important that formal qualifications do not cut across these characteristics in order to service accountability to people externally, skewing teaching and learning in often narrow and restricted ways. It is critically important that curriculum assessment arrangements and qualifications are aligned.

2.4.4. *Integrated*

Our current occupational and professional groupings in the West are largely a result of late 19th Century and early 20th century ‘scientific management’ (or ‘Taylorism’) that crowded jobs (and hence people) into narrower and narrower sets of tasks that were easy to assess and manage. Associated process-orientation and ‘deskilling’ (away from ‘master-builder’, craft-based production that rewarded quality and creativity)⁵⁸ left many occupations open to automation in various waves of 20th century technological development. ‘Taylorized’ jobs are hence increasingly vulnerable in the future⁵⁹. Meanwhile, it is ever clearer that successful workers in the future will require adaptability and flexibility in their skill sets and the ability to analyse and respond to complex environments and contexts. The need for holistic approaches rather than policy and action which only make sense for narrow objectives suggests our organisation of occupations should change: from often-clashing planners, engineers and economists to *place-makers*; from nurses, psychologists and paramedics to *caregivers* and from plumbers and electricians to – well, *handymen* (or rather handypersons), fixing the tap whilst advising homeowners on tips for better home management and resultant health.

Beginning this process will require integration across Areas of Learning in the new curriculum for Wales 2022. For example an eco-warrior would require knowledge and understanding of psychology, economics, planning and organisational behaviour as well as ecological processes; be able to assess, synthesise and act on evidence of differing type and quality; and communicate the need for action in creative ways – whilst building fluid, flexible teams of people with complementary attributes. Training such people requires integration of material and competencies from across ‘disciplines’, and the best way to encourage such integration (well beyond the current cross-cutting themes of numeracy, literacy and digital) is to design thematic qualifications and assessment that span disciplines and AoLEs. Retention of existing discipline boundaries for qualifications risks both the use of established non-topical materials, a static pedagogy and the locking in of (academic) disciplines into post-16 education and beyond with

detrimental impacts on employability and future resilience. A more radical approach is to develop a more formally vocational pathway at earlier age in school education.

2.5. The Key Structural and Resource Issues

A decade of austerity on top of a long-standing narrow, qualifications-oriented approach to schooling and teaching practice of variable quality has left both the UK and Wales in a difficult place from which to navigate the path to a more fit-for-the-future education system. It is clear from the responses of teaching practitioners and unions to the curriculum for Wales 2022 is that its best intentions will simply not fulfil potential without significant additional resource. Drawing on the requirements for a different ‘sort’ of teaching and learning outlined in the curriculum, and the implications of the analysis above, we suggest a number of structural and resource issues that must be addressed, and opportunities taken, if Wales is to prepare our children for their futures.

2.5.1. *Restructured Teacher Education – Initial, and Continuing Professional Development*

Following significant criticism in 2015, where ongoing issues and tensions were identified by Prof John Furlong⁶⁰ there has been a restructuring of teacher training in Wales, enacted primarily via the Education Workforce Council (EWC)⁶¹ (which regulates school teachers and training, and provides value added such as voluntary ‘Personal Learning Passports’ for teachers). A revamp of content in initial teacher education (ITE) is being introduced this year,⁶² with a welcome focus on a greater role for schools, and an increased visibility for research in training. The EWC provides a useful role in, for example, highlighting the ways in which teachers can teach effectively under the new curriculum and highlighting key issues⁶³, but it is unclear how the EWC takes account of wider societal and technological trends in guiding ITE or professional development, or whether they are mindful of the Well-being of Future Generations Act⁶⁴. The EWC governing Council is comprised 100% of members from educational or youth work sectors, with no representation, for example from industry⁶⁵ and the same is true of its Accreditation Board⁶⁶. Corporate documents including the 2019-22 Strategic Plan provide no context for activities, nor any mention of either the curriculum or the WFG Act⁶⁷. Meanwhile, previous work has suggested a transformation of ITE and continuous professional development (CPD) is required to prepare teachers to engage with the teaching of content in ways which knit together themes and materials across AoLEs^{68,69}. It is unclear who might have the remit and authority to change teacher education to ensure it is fit for both future-skills and future

generations. Numbers in ITE are undergoing a contraction in Wales due in large part to previous oversupply (and hence a lack of jobs for graduates), but with little sign of a strategic approach⁷⁰. There is, we suggest, a need for an urgent root-and-branch reconsideration and increased resourcing of teacher education in Wales, including of relevant governance structures, with the objective firmly on producing teachers enthusiastic and suitably skilled to deliver education focused on future skills in Welsh schools.

2.5.2. A 'Psychologically Aware' School Environment

The Welsh Government has in recent years moved away from an explicit focus on targeting and alleviating poverty targeting and alleviation in a number of policy areas, arguing that such an orientation and awareness is 'baked' into their policies across the board⁷¹. In education this has, for example, seen the ending of Teach First Cymru, which encouraged highly qualified graduates to work with schools in the most disadvantaged areas⁷². If this is the approach, then it is critical that 'mainstream' teachers can work effectively with learners from a wide range of backgrounds and home circumstances.

There is a need to engage and support parents and carers in enabling children to develop from an early age to equip them to learn effectively and build resilience. Practitioner awareness and approach is also key to ensuring that children, for example with adverse experiences (ACEs⁷³, associated positively with economic deprivation) can learn in a supportive environment, using a variety of approaches that suit them. For example, the chronic stress consequent on experiencing multiple ACEs can make it extremely difficult for children (and indeed adults) to concentrate for extended periods, sit still and otherwise conform⁷⁴. ACE awareness resources already exist in Wales and are being piloted across a number of schools⁷⁵.

2.5.3. More Central Support and Materials, Wider Engagement

There are numerous ways in which the curriculum for Wales 2022 requires teachers to restructure their teaching, and address areas that may not have been formerly (formally) part of curricula in their schools. Business and social science is an example in the Humanities AoLE, where even pioneer schools reported a low level of experience and hence confidence to teach⁷⁶. Whilst the draft curriculum for Wales 2022 delivers welcome agency and autonomy to teachers, there is so far much less clarity on what materials and wider support will be available to ensure teachers are able and confident to teach effectively in new areas⁷⁷. The idea of wholly

bespoke, school-centred curricula content is admirable but overly ambitious, particularly given the lack of clarity on how teacher education will be restructured to cope; an extra inset day will not be adequate. The Welsh Government and regional consortia should give thought to how much support teachers need to enable effective learning, in terms of access to properly developed content and best practice approaches (from across and outside Wales⁷⁸). There is clearly here a tension between ‘top down’ and standardised content provision and bespoke, locally appropriate material, but Welsh Government abrogation in this area will likely result in private providers stepping in with content that is from existing templates but ‘tweaked’ to appear Curriculum-for-Wales relevant. Such a central resource could also be used to create and maintain more formal links between Welsh schools and the businesses, representative bodies, public sector employers, charities and other others, links with whom would improve authentic learning for children – and who might themselves benefit from such interaction.

2.5.4. More, and More Varied, Teaching Practitioners

The introduction of a far more integrated curriculum requires deep thought about school pedagogy and teaching structures. Persistent and well-known difficulties in delivering effective learning must be addressed. We contend that options to consider should include:

- **The encouragement of teacher-led team teaching** across the progression range to deliver learning across AoLEs with a team with deliberately complementary interests, experience and expertise⁷⁹;
- **The employment of numeracy-, literacy- and digital-expert teaching practitioners** to deliver (or help deliver) these cross-cutting elements of the Curriculum in schools. Despite the requirement for English and Maths qualifications for PCGE in Wales, and even with revised ITE, many teachers will never be really comfortable and confident delivering in areas where they have struggled to learn as individuals⁸⁰.
- **A more attractive and formalised role for teaching assistants** – who currently do not have a clear career structure and expected competencies/qualifications. Targeted recruitment of skills (even if not formal) in areas currently lacking could help to fill gaps in knowledge and expertise – and attract individuals with fewer formal skills, but from a wider range of ages and backgrounds, and with rich personal competency and interest in key areas such as digital.
- **A ‘national mission’ to engage the people of Wales more deeply in teaching and learning** in schools (not merely in school governance). With future working lives more fragmented, and with work potentially harder to come by, the social capital inherent in the

people of Wales – early retired, gap-year students, activist citizens, gamer-geeks and ancestry buffs⁸¹ – cannot be overlooked. Engaging such people, on a voluntary basis in children’s learning, appropriately managed, would bring richness and authenticity to the new curriculum, as well as potential resource and time benefits for teachers.

There is a core vision here for a much higher ratio of teaching practitioners to students, and more varied and engaged practitioners at that. The perceived successes of the Foundation Phase, it should not be forgotten, were associated with a significant increase in numbers of practitioners⁸². It is very difficult to see the far more ambitious Curriculum for Wales 2022 succeeding without a similar increase in resources across the age range.

2.6. Funding the Vision

Delivery of the vision for schools outlined above significantly exceed the current resource base of the sector. This would be true in all probability even without a decade of austerity and consequent reductions in per pupil funding. Increasing spending on schools is not easy, especially when the spending in prospect is largely ongoing salary spend rather than one-off capital spending.

Some loosening of budgets could occur following a potential increase in English school spending and a Barnett consequential for Wales⁸³ although this is of course uncertain, likely Brexit-dependent and probably will not fit with fixed Welsh curriculum and other timeframes. Moreover, any Barnett consequential might go only in part or not at all to Welsh schools, dependent on the decisions of Welsh Government and local authorities.

It is our firm opinion therefore that increased resources will need to be found from within Welsh budgets, and further, that due to the critical importance of high quality school education for the wellbeing of future generations, that money should be ring-fenced to ensure the structures and delivery described in this report can be properly funded. Given current budget conditions this will need to be new money, although it is outside the scope of this discussion paper to suggest how much is required. However, it is timely to note that a 10% increase in schools budget would require in the region of £200m per annum⁸⁴.

At the same time, Government should seek innovative solutions to reduce the level of cash funding required. For example, a narrative that strongly engages and entices the social capital of the Welsh population to volunteer their efforts, together with central support (indemnity insurance; DBS checks and similar) could both ease implementation and reduce per-school cost; the Economic Contract with business, part of Prosperity for All economic strategy, could require businesses to invest in supporting learning in schools through placements, ‘lending’ their staff and other engagement. With the creative industries being one of the fastest growing sector of the economy, what role can arts, cultural and creative industry have in assisting the implementation of the curriculum?

Additional resource will still be needed. Hypothecated funding for education and skills is not of course a new idea, but existing approaches are not easily applicable to schools in Wales. For example, the assumption that employers and companies pay is conceptually problematic for adult/post-16 skills, let alone for school-age interventions⁸⁵, and are bureaucratically difficult⁸⁶. The UK’s recent attempt with the Apprenticeship Levy has received strong criticism along these lines⁸⁷.

We propose a new hypothecated and broad-based Welsh tax, or perhaps more practically an additional levy on existing taxes, specifically directed at enabling the curriculum transition, and sustaining high quality and compulsory education, fit for the future. The burden should be shared by households and businesses, for example through existing mechanisms that could include business rates and council tax (or their replacements) and/or the Welsh element of income tax. Further, given the urgent nature of the resource need, we suggest the Welsh Government investigate using of Public Sector borrowing powers, somewhat freed by the decision not to pursue the M4 Relief Road, to boost school budgets in the critical short term, repaying the capital over the long term via a modest annual deduction from the new tax revenue.

In the immediate future, the Welsh Government should commission a report investigating the potential options for funding school education along these lines, its role in enabling structural change, and outlining the logistics of the rapid application of the new resources. This could follow and build upon the template set by Professor Gerry Holtham’s report for the Government on Funding Social Care in 2018⁸⁸, which addressed several relevant issues such as hypothecation, UK fiscal issues and equity.

3. Conclusion

3.1. Our Conclusions and Recommendations

This discussion paper has outlined the need to restructure compulsory school age education both in service of, and well beyond, the curriculum for Wales 2022. There is also a need to move quickly if the 2022 launch and years immediately after are characterised by a lack of wider direction and resources. We believe the actions outlined comprise a coherent and deliverable vision of Welsh school education that responds directly to the future skills needs of Wales and its economy, whilst being clearly placed within the value-framework of both the curriculum and the WFG Act.

Summarising, we conclude;

1. The new curriculum provides a suitable framing for transformational change in service of future skills. It is ethically and context aware and attempts some real integration, fulfilling many tenets of the WFG Act – but this could and should be more explicit.
2. It will, like the Foundation Phase, need a significant increase in the number of practitioners to deliver. Indeed, even more so.
3. Teachers are not adequately trained – either initially or via inset days – to deliver what is needed. A new focus and restructuring of professional learning for teaching is mandatory, to run parallel with the re-visioning of schools as professional learning organisations.
4. The cross-cutting digital, numeracy and literacy elements should be supported, and in many cases delivered, by in-school dedicated and highly trained professionals.
5. If Welsh is genuinely to be taught as part of a ‘dual stream’, early consideration of consequent logistical and resource issues is critical – recruiting or training enough teachers sufficiently adept in Welsh to be able to teach at secondary level in the language, across the range of AoLEs and disciplines, is an immense challenge.
6. Learning needs to be co-created and co-delivered with the businesses, charities and other organisations (and employers) of Wales.
7. There will need to be a greater provision of teaching material centrally (or via regional consortia) than is currently assumed, especially in areas such as business that will be novel in some schools, and around cross-cutting themes or ‘grand challenges’ such as

- climate change. Much of the intelligence and competency already exists, albeit needing focus and release, in Welsh HEIs.
8. There are thousands of early retirees, gaming geeks, ancestry.com buffs and others who can help deliver authentic learning, not just sit on governing boards. Their social capital cannot go to waste.
 9. School year-teachers in primary schools should be supported with teaching teams of complementarily skilled practitioners
 10. GCSEs are no longer fit for purpose. There is a strong rationale for their replacement with narrative based assessment that tells employers exactly what learners are all about.
 11. Indeed, in terms of preparation for the future, public exams at 16 are largely pointless, lead to costly gaming between and within schools, and the hugely problematic process of 'off-rolling' less academic children.
 12. Assessment needs to be value-added and pupil-centred, across programmes (not just at the end) and diverse; not comparable across schools and testing a narrow range of recall and process skills.
 13. Vocational streams need to be of high quality, employer engaged and early-starting. Not least because white, working-class boys, immigrant learners and some ethnic groups disproportionately end up on these programmes.
 14. Schools need to be 'psychologically aware' environments. There may be very good reasons why a pupil can't sit still for an hour, because they are permanently in a high stress mode - driven by adrenaline.
 15. Disciplines are problematic. You can't teach about the climate emergency without including geography, economics, history, sociology and anthropology. So holistic, cross-curriculum teaching beyond AoLEs (and relevant assessment) is a core requirement.
 16. We need to start inventing new professions in our schools that explore what jobs and skills will be needed in the future: Caregivers, Placemakers, and Eco-Warriors for example.
 17. All this is impossible in a system that will see a 9% reduction in per-pupil spending over the decade to 2021. We need a hypothecated Welsh Education tax or levy to significantly increase school education budgets.

4. Notes and References

- ¹ For this review see <https://gov.wales/review-digital-innovation-delivering-economic-transformation-better-future-work>
- ² <https://gov.wales/new-school-curriculum-overview>
- ³ <http://theconversation.com/new-welsh-curriculum-may-make-education-more-holistic-but-students-might-miss-out-on-subject-knowledge-111853>
- ⁴ <https://www.bbc.co.uk/news/uk-wales-38855531>; <https://www.bbc.co.uk/news/uk-wales-46811508>; <https://www.wlga.wales/SharedFiles/Download.aspx?pageid=62&mid=665&fileid=2470>
- ⁵ <https://sibietaeconed.files.wordpress.com/2019/04/school-spending-in-wales-090419-2.pdf>
- ⁶ https://epi.org.uk/wp-content/uploads/2019/01/Pupil-Performance-England-vs.-Wales_EPI.pdf
- ⁷ Ibid; <http://athrofa.cymru/2018/05/15/a-test-for-welsh-education/> <https://www.bbc.co.uk/news/uk-wales-38208738> See Sellar, S., Thompson, G., & Rutkowski, D. (2017). *The global education race: Taking the measure of PISA and international testing*. Brush Education for an analysis of PISA
- ⁸ For issues around deprivation and attainment, see: Morris, T., Dorling, D., & Davey Smith, G. (2016). How well can we predict educational outcomes? Examining the roles of cognitive ability and social position in educational attainment. *Contemporary social science*, 11(2-3), 154-168.
- ⁹ <https://hwb.gov.wales/curriculum-for-wales-2008/digital-competence-framework/>
- ¹⁰ Barcelona White Paper on the Future of Jobs and Work <http://www.eurocities.eu/eurocities/news/Barcelona-presents-White-Paper-on-the-future-of-work-and-jobs-at-EU-level-WSPO-B8N5FH>
- ¹¹ Mishra *et al* (2012) Technology & Creativity in the 21st Century: Crayons are the Future Tech Trends 56: 13. <https://doi.org/10.1007/s11528-012-0594-0>; Petelczyc, C. A., Capezio, A., Wang, L., Restubog, S. L. D., & Aquino, K. (2018). Play at work: An integrative review and agenda for future research. *Journal of Management*, 44(1), 161-190. <https://doi.org/10.1177/0149206317731519>
- ¹² At least as reported in America: Bialystok, E. (2018). Bilingual education for young children: review of the effects and consequences. *International journal of bilingual education and bilingualism*, 21(6), 666-679; <https://www.tandfonline.com/doi/abs/10.1080/13670050.2016.1203859>; Lindholm-Leary, K. (2016). *Bilingualism and Academic Achievement in Children in Dual Language Programs*. in *Bilingualism Across the Lifespan: Factors Moderating Language Proficiency*.
- ¹³ <http://www.oecd.org/education/Improving-schools-in-Wales.pdf>
- ¹⁴ <https://www.weforum.org/agenda/2019/04/a-new-welsh-curriculum-aims-to-make-education-more-holistic-will-it-work/>

¹⁵ <https://wiserd.ac.uk/publications/evaluating-foundation-phase-final-report>; - the need to invest properly is highlighted by the Finnish case <https://www.smithsonianmag.com/innovation/why-are-finlands-schools-successful-49859555/>

¹⁶ https://www.estyn.gov.wales/sites/default/files/documents/Estyn_Annual%20Report_2018_English_Accessible.pdf

¹⁷ See 2.5.4

¹⁸ [https://wjec.co.uk/qualifications/business/r-business-gcse-2017/wjec-gcse-business-spec-from-2017%20\(22-06-16\).pdf](https://wjec.co.uk/qualifications/business/r-business-gcse-2017/wjec-gcse-business-spec-from-2017%20(22-06-16).pdf)

¹⁹ <https://nation.cymru/opinion/we-need-to-prepare-our-school-pupils-for-wales-dysfunctional-economy/>

²⁰ <https://hwb.gov.wales/draft-curriculum-for-wales-2022/assessment-and-evaluation-framework/assessment-proposals/>

²¹ See for example https://link.springer.com/chapter/10.1007/978-3-319-66923-6_33 for skills and competencies relevant for Industry 4.0

²² <https://qualificationswales.org/media/4209/letter-education-minister-eng-12-feb-2019.pdf>

²³ <https://qualificationswales.org/media/4223/qualifications-wales.pdf>

²⁴ <https://gov.wales/sites/default/files/publications/2018-03/education-in-wales-our-national-mission.pdf>

²⁵ Moat internal Welsh Government interventions, for example in transport, now have an explicit statement on how they will address the requirements of the WFG Act.

²⁶ <https://www.bbc.co.uk/news/education-47149808>

²⁷ <https://www.tandfonline.com/doi/full/10.1080/03054985.2018.1409964>

²⁸ https://www.theguardian.com/education/2019/apr/18/more-than-49000-pupils-disappeared-from-schools-study?CMP=share_btn_link; <https://www.bbc.co.uk/news/uk-wales-45508976>

²⁹ <https://journals.sagepub.com/doi/abs/10.1177/0143034308101850>

³⁰ <https://www.telegraph.co.uk/education/further-education/11803801/GCSEs-are-outdated-and-will-wither-on-the-vine-says-the-man-who-introduced-them.html>

³¹ <https://www.bbc.co.uk/news/education-33190028>

³² <https://www.bbc.co.uk/news/education-47149808>

³³ See for example Brown et al (2019) xxx

³⁴ <https://www.tandfonline.com/doi/abs/10.1080/09500693.2016.1195520>. Teachers additionally are of course drawn exclusively from that subset of the population who were academically oriented enough to attend university, encouraging further bias.

³⁵ The work of ESTYN, which arguably would need to be expanded and restructured if standardised GCSEs were abandoned

³⁶ E.g. PISA although this is not without issue.

³⁷ <https://www.scmp.com/comment/insight-opinion/article/2118926/hong-kong-schools-can-learn-flexible-education-system>

³⁸ <https://hwb.gov.wales/draft-curriculum-for-wales-2022/humanities/>

³⁹ <https://journals.sagepub.com/doi/abs/10.1177/0019793914564963> <https://www.emeraldinsight.com/doi/abs/10.1108/HESWBL-07-2014-0027>; <https://www.tandfonline.com/doi/abs/10.1080/03075079.2013.842221>

⁴⁰ See for example <https://scinapse.io/papers/2096200540> and <https://eprints.gut.edu.au/12576/> for a law-based discussion.

⁴¹ Indeed the term ‘vocational education’ is often assumed to *exclude* schools <http://cep.lse.ac.uk/pubs/download/ea041.pdf>.

⁴² Qualifications Wales has quietly made some progress in developing new qualifications for ‘vocational’ sectors <https://qualificationswales.org/english/news/cbe-award-announcement-july-2019/>

⁴³ <https://www.tandfonline.com/doi/abs/10.1080/01425692.2014.982860>

⁴⁴ <https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/poverty-ethnicity-education-full.pdf>; <http://www.smf.co.uk/half-white-working-class-black-british-students-england-get-university-vocational-qualifications-btecs/>; <http://www.blackeducation.info/upload/docs/BME%20People%20and%20Educational%20Disadvantage.pdf>

⁴⁵ <https://dera.ioe.ac.uk/28399/1/170201-promoting-engagement-en.pdf>

⁴⁶ Taken from https://epi.org.uk/wp-content/uploads/2019/01/Pupil-Performance-England-vs.-Wales_EPI.pdf

⁴⁷ Finland seems to show that equality and quality are not trade-offs <https://link.springer.com/article/10.1007/s11125-008-9061-2>

⁴⁸ <https://www.theguardian.com/commentisfree/2018/aug/26/the-guardian-view-on-gcses-there-is-more-to-school-than-exams>

⁴⁹ See Goldstein, H., & Nuttall, D. L. (2017). ‘Can graded assessments, records of achievement, modular assessment and the GCSE co-exist?’ in Gipps, CV (Ed). *Effective Assessment and the Improvement of Education: A Tribute to Desmond Nuttall*, 132., and indeed the entire book for an introduction to why GCSEs are as they are.

⁵⁰ ‘In some respects, GCSE have become *worse* in these regards; see <https://www.tandfonline.com/doi/abs/10.1080/04250494.2017.11964034> for one example. Controlled assessments’ (i.e. non-exam coursework) in GCSEs remains very much a problematic second child; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/377903/2013-06-11-review-of-controlled-assessment-in-GCSEs.pdf; <https://www.tandfonline.com/doi/abs/10.1080/0969594X.2019.1619514>

⁵¹ https://wjec.co.uk/qualifications/food-and-nutrition/wjec-gcse-food-and-nutrition-spec-from-2016-e.pdf?language_id=1

52 <https://www.tandfonline.com/doi/full/10.1080/03054985.2018.1409964>

53 <https://journals.sagepub.com/doi/full/10.3102/0013189X15584327>

54 Applying the ‘glass half full’ approach of Asset Based Community Development to understanding the potential of children; <https://sustainingcommunity.wordpress.com/2013/08/15/what-is-abcd/>

55 See <https://www.theguardian.com/education/2019/may/13/teachers-assessing-pupils-could-replace-formal-exams-study-says> for a very recent relevant study

56 Student value added assessments are already used although in the US there is a link to teacher evaluation that we do not envisage here; see <https://journals.sagepub.com/doi/full/10.3102/0013189X15575031> and <https://journals.sagepub.com/doi/full/10.3102/0013189X15575346> for interesting debate.

57 <https://curriculumforwales.gov.wales/2019/04/26/assessment-and-the-new-curriculum/#more-1486>

58 <https://www.sciencedirect.com/science/article/pii/S0361368299000525>; <https://journals.sagepub.com/doi/full/10.1177/0143831X17735671>; Dave Graeber’s ‘*Debt: the First 5,000 Years*’ has an interesting section on this: <https://www.mhpbooks.com/books/debt/>

59 <https://www.tandfonline.com/doi/full/10.1080/00213624.2016.1148469>

60 <https://gweddill.gov.wales/docs/dcells/publications/150309-teaching-tomorrows-teachers-final.pdf>

61 www.ewc.wales

62 <https://www.ewc.wales/site/index.php/en/policy-hub/research-and-policy/research-blogs/315-professional-insights-trainee-teachers.html>

63 For example on resource levels, and the lack of any professional accreditation approach <https://www.ewc.wales/site/index.php/en/documents/research-and-statistics/consultations/1394-ewc-response-to-the-children-young-people-and-education-committee-consultation-on-welsh-government-s-progress-in-developing-the-new-curriculum-for-wales.html>

64 E.g. in terms of long term planning based on a solid understanding of future trends and scenarios; avoiding the development of obsolescent skills; integrating learning across a range of areas and disciplines; collaborating with business NGOs and others; and involving teachers pupils and others in the development and delivery of ITE

65 <https://www.ewc.wales/site/index.php/en/about/council-members.html>

66 <https://www.ewc.wales/site/index.php/en/ite-accreditation/initial-teacher-education-ite-accreditation-board.html>

67 <https://www.ewc.wales/site/index.php/en/about/corporate-documents.html>

68 <https://nation.cymru/opinion/we-need-to-prepare-our-school-pupils-for-wales-dysfunctional-economy/>

69 <https://repository.uwtsd.ac.uk/953/>

70 <https://www.ewc.wales/site/index.php/en/policy-hub/research-and-policy/research-blogs/315-professional-insights-trainee-teachers.html>

71 <https://gov.wales/written-statement-closure-communities-first-programme>

72 The monetary Pupil Deprivation Grant does continue.

73 <https://developingchild.harvard.edu/resources/aces-and-toxic-stress-frequently-asked-questions/>

74 In layperson terms, such children are constantly experiencing 'fight or flight' heightened stress hormone levels

75 <https://www.aceawarewales.com/>

76 Intelligence gathered during Curriculum development events.

77 https://cf-my.sharepoint.com/:w/g/personal/jonesc24_cardiff_ac_uk/EdXioRkm_mIOgXITgj-tz2kBG3pPedDsdMHFI22paKaepQ?e=2J97ew

78 There is already a lively debate amongst teachers about which organisations will be developing actual content for the curriculum, enabled of course to some degree by Hwb and the regional consortia.

79 <https://www.tandfonline.com/doi/abs/10.1080/00131880600732272>; <https://eric.ed.gov/?id=ED378777>

80 <https://www.ewc.wales/site/index.php/en/documents/research-and-statistics/consultations/1394-ewc-response-to-the-children-young-people-and-education-committee-consultation-on-welsh-government-s-progress-in-developing-the-new-curriculum-for-wales.html>

81 For example embedding the idea of intergenerational practice <http://www.ageingwellinwales.com/Libraries/Documents/Guide-to-Intergenerational-Practice.pdf>; <https://www.childcomwales.org.uk/resources-2/intergenerational-resource/>

82 <https://wiserd.ac.uk/publications/evaluating-foundation-phase-final-report>

83 At time of writing increased spending has been suggested as a key priority for whoever is the new Tory leader <https://www.bbc.co.uk/news/uk-politics-48468396>

84 <https://statswales.gov.wales/Catalogue/Local-Government/Finance/Revenue/Delegated-School-Outturn>

85 <https://www.ingentaconnect.com/content/sabinet/1ht5j5/2002/00000026/00000001/art00001>

86 <https://ora.ox.ac.uk/objects/uuid:7b96c61d-1fa8-4526-b022-2fece494abd1>

87 <https://www.bbc.co.uk/news/business-42818613>

88 *Paying for Social Care - An independent report commissioned by the Welsh Government* Professor Gerald Holtham June 2018 <https://gov.wales/paying-social-care>

