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Digital curriculum trends

A case-study of the European Computer Driving Licence

About this report

This document constitutes a draft summary of research undertaken in January 2016. It is an unreferenced 'working paper' and constitutes a broad thematic analysis of:

- On-line discussions with teachers, academics and IT professionals.
- Discussions with school based colleagues on the curriculum offered by their school and changes currently underway.

It is distributed in this form for review and comment in order to develop a final report for release in May 2016.

The content reflects the comments made by a wide range of contributors and the views expressed in their interpretation are those of the author alone. The work was undertaken as part of a wider programme of personal research into the 'Digital Curriculum' in schools. The work was not funded or commissioned by any organisation, awarding body or government agency.

Context

At the core of the English government's reform of state education is the aim of giving schools the 'freedom' to shape a curriculum which is tailored to the specific needs of their pupils.

This principle underpins plans for the academisation of all schools and was at the core of the recent reform and 'slimming down' of the National Curriculum.

The rationale for reform and new curriculum 'freedoms' is underpinned by the model of a school level curriculum design process where decision making is strongly shaped by a careful consideration of pupil needs within a local context.

The curriculum offered by schools is rightly subject to ongoing revision and adjustment as schools seek to match their offer to changing pupil needs and the availability of resources but periodically dramatic changes occur across a large number of school with such changes often being associated with government adjustments to the school performance metric. One such change has been the large scale uptake of the [European Computer Driving Licence](#) examination with some sources claiming increased uptake of [2000%](#).

Such dramatic changes cannot be seen as 'minor adjustment' made in response to local changes in pupil need but constitute a curriculum change 'phenomenon' which merits

investigation as part of [the routine monitoring and evaluation which normally forms an integral part of any systematic policy process](#).

This report constitutes a small scale pilot study undertaken to investigate the forces driving the uptake of ECDL.

Introduction

In January 2012 the Secretary of State for Education offered that the current digital curriculum in schools left pupils ["bored out of their minds being taught how to use Word and Excel by bored teachers"](#).

This view outlines the underpinning perceptions of the digital curriculum being delivered in schools prior to 2010 and based on the 'old ICT curriculum'. The view of a 'boring curriculum' consisting largely of 'office skills' was contrasted with a 'new curriculum' which was to be 'rigorous' and 'exciting'. A curriculum was to be developed which would be designed and implemented quickly and developed by 'subject experts' and 'industry stakeholders' suggesting a core conception by policy makers of a digital school curriculum in which the primary relationship between the individual and digital technologies was vocational and defined by being either 'users of technology' or 'creators of technology'. This problematic and oversimplified model of a school digital curriculum relates strongly to the dominant curriculum paradigms of the early years of school computing (1980 - 1988) where pupils engaged with programming and studied the characteristics of hardware devices and computer systems under the heading of 'Computer studies' and the business applications model which underpinned curriculum design and delivery for the period 1988 to 2009.

The rapid spread of digital technologies beyond the computer lab and office desk to become arguably one of the most significant change forces impacting on society, economy, culture and politics offers a major challenge in constructing a new digital curriculum.

As the process of curriculum reform proceeded a wider ideological context underpinned by rhetorical devices of much stated but seldom explored notions such as 'rigour', 'traditional subjects' and 'fitness for purpose', and an assumption of a dominant economic rationale for education acted to shape the curriculum at national level whilst forces of performativity (league tables, 'floor target' and 'performance metrics') acted to mediate how top level curriculum conceptions are implemented at school level.

The notion of subjects as 'knowledge domains' or 'bodies of knowledge' and their definition dominated the conception of a school curriculum where the criteria for inclusion related strongly to the idea of legitimate 'subject' status rather than an ['aims based curriculum'](#) which may have supported a broader digital curriculum addressing a wider range of more up-to-date needs.

What was largely unexplored in the discussions which were to inform the process of curriculum reform included:

- If a new curriculum was to be 'fit for purpose' - what 'purpose(s) was it to be 'fit' for?
- To what extent does the Programme of Study defined by the secretary of state translate into 'the curriculum' received by various groups of pupils at school level?
- To what degree should a school curriculum 'subject' (contrasting with a university subject domain curriculum) be defined in terms of pupil needs and the broader relationship between society and digital technologies?
- If the school curriculum is to be a reflection of the values and aspirations of the society which it is designed to serve, what are the limits of the subject knowledge 'expert' in defining a 'national' curriculum with the needs of pupils at its core ?

This short report does not offer a systematic evaluation of the European Computer Driving Licence as a qualification taken in isolation but an exploration of 'the rise of ECDL' as a curriculum phenomenon'. The outcome of the study does not offer a view on the degree to which ECDL constitutes a good qualification or a poor one but seeks to underline the forces which are acting to translate the 'top level' curriculum as specified by the Programme of Study into 'the curriculum as received' which can be shaped by forces beyond the subject.

The importance of digital technologies is universally recognised and the school curriculum clearly has a role in preparing young people as both as workers and as citizens in a complex 'digital society'. What is equally clear is that broader curriculum forces are interacting with the reform of the digital curriculum to offer a 'school level' experience which does not always articulate strongly with the Programme of Study, offer a 'broad and balanced curriculum' or provide all pupils with equal entitlement of access to the curriculum.

Whilst educational reform is often a compromise between the competing power of various stakeholders, haste and unexplored assumptions can constitute the paving stones of 'good intentions' on a road leading to unintended destinations.

In developing an understanding of the forces acting to shape 'the curriculum' we may build our capacity to model the way changes to the top level curriculum, to performance measurement systems and the introduction of new courses will influence 'who gets what?' at classroom level.

Approach and evidence base

The study was undertaken in response to information gathered from schools that ECDL is being increasingly offered to pupils as part of (or as the totality of) their curriculum encounter with digital technologies at KS4. This may be viewed in the context of a decline in time

allocated to computing as a subject at KS3. In exploring this issue teachers, academics and IT professionals were invited to offer their views on:

- Is ECDL a 'good' or 'bad' course?
- What is driving the uptake of ECDL?
- What are its strengths and weaknesses?
- What is the value of what is learned?
- Does the course constitute a 'broad and balanced curriculum' for computing?

The responses were invited as part of an open, online discussion and there was no attempt to 'code' or 'quantify' responses. The sample size is relatively small and self-selecting and the extent of the data collection is such that it should be considered as flagging areas for more systematic enquiry.

The responses to the on-line call for views was supplemented by the gathering of views of staff in schools gathered from a wider professional network.

The text of the views offered was analysed to identify a number of themes and then reviewed and mapped to five broad and overlapping themes.

- Context and trends.
- Content and challenge.
- Value and relevance.
- Approaches to teaching and learning.
- Assessment and administration.

Whilst the use of such headings make developing an understanding of the forces in play more accessible it will become become apparent to the reader how these themes overlap and are mutually dependent. The causal linkage between these strands suggests that solutions cannot be found by offering a series of 'patches' to ameliorate individual problems. The relationships between assessment mechanisms and the choice of pedagogy and the linkage between the broader school curriculum and the value of the course to individual pupils are complex and suggest that a course of study cannot be evaluated only by reference to its 'subject content' - the element which has largely dominated the curriculum debate. Subject content and its associated assessment framework will exert a powerful force on pedagogy. In turn, the pedagogical approach will influence the value of what is learned, as such, in part 'the medium is the message'.

Summary analysis

In considering the value of ECDL the submissions from respondents, five overlapping strands were apparent. Firstly respondents offered their views on the wider circumstances within which the value of ECDL should be considered and how it related to what might be seen as a 'good' subject curriculum. Comments were also offered in relation to the content of the course in relation to the wider Programme of Study and the overall breadth of the ECDL content. A further strand discussed the 'value' of the course both in terms of the usefulness of the learning outcomes in a variety of contexts and the contribution the course might make to the performance metric of the school. Respondents also commented on the relationship between the nature of the content and assessment mechanisms, the impact these have on the way the course is delivered and how it responds to the needs of a diverse range of learners. Finally respondents offered their views on the assessment mechanisms of the course and the impact of this on the role and responsibilities of the teacher.

1. Context and trends

1.1. In undertaking an evaluation of a particular qualification or course of study it is necessary to relate criteria and judgements to the context within which the course is deployed. The key characteristics of the secondary school context are:

- A curriculum which is broad, balanced and which meets a plurality of needs particularly where the subject is considered to be 'compulsory'.
- The course should relate closely to the specified Programme of Study unless it is an embedded element within a wider curriculum experience or where it is offered as a supplementary element of the curriculum.
- Whilst the course may be 'vocational' in nature, both content and pedagogy should be of general value and be useful in a variety of contexts. 'Vocational education' suitable for a school curriculum might be contrasted with 'vocational training' more suitable for further education where learners are pursuing a particular work related pathway.
- Just as the content must be of broad and enduring value, so the pedagogical approach should support the wider and cross-curricular aims of a good school curriculum e.g. developing thinking skills, independence, team working skills, literacy and numeracy.

STEM teachers being particularly hard to recruit. Under such circumstances planners will seek to deploy the limited staff available in a way which has maximum impact on measurable outcomes. It was felt by some respondents that where a course could be constructed around an on-line content delivery core some schools may seize this opportunity to deploy less well trained staff in a 'management and monitoring' capacity. This trend was previously encountered in the 1990's where 'integrated learning systems' were used to develop basic literacy and numeracy skills with teaching assistants rather than teachers being deployed to 'supervise' rather than teach pupils. There are significant concerns regarding the quality of such teaching and learning models.

2. Content and challenge

- 2.1. As a compulsory subject at secondary school level the curriculum encountered should be broad and meet the needs of all pupils. Many respondents suggested that the ECDL qualification alone lacks the breadth required to address pupil's needs and to deliver the Programme of Study for Computing. This narrowness is not an inherent weakness of the qualification but it was felt that in the context of a school curriculum required to address the National Curriculum, it should be seen, at best, as a strand or component in a broader and balanced digital curriculum. Whilst ECDL is a course, it is not a curriculum.
- 2.2. ECDL is seen as being largely 'vocational' in focus developing software skills relevant to a work context. Some contributors suggested that when delivered in isolation the course may fail to develop pupils' capabilities in a way which allows them to deploy their knowledge flexibly, in a variety of contexts and to develop the broader work related skills such as problem solving and team working. It was suggested that ECDL might be seen as 'vocational training' rather than more general 'vocational education'. These problems were seen to relate to the course content, assessment approach and implied pedagogic approach.
- 2.3. The discourse surrounding the nature of the digital curriculum has largely defaulted to a subject anatomy drawn from the Royal Society report '[Shut down or restart](#)' which offered the model of a digital curriculum, comprising 'Computer Science', 'Digital Literacy' and 'IT'. Whilst the justification for this model was rather underdeveloped and focussed on the perceived needs of a

particular set of stakeholders the value of digital literacy is noted as being a necessity for all pupils. As work has proceeded to build a school level curriculum based on the new and very brief Programme of Study the definition of 'digital literacy' has received significant attention as stakeholders have sought to address this area of learning. In some cases the discussion has consisted of a search for an 'authoritative definition' which might be used as the foundation for the development and subsequent evaluation of this aspect of the curriculum. This 'expert definition' might be considered problematic in the degree of value it can offer curriculum developers as what digital literacy 'is' or 'should be' will shift with changes to technology and with the nature of the relationship between society and technology. As such digital literacy must be 'defined' by recourse to the context in which it is delivered and the purpose which it is to address. In the case of schools what digital literacy 'is' can only usefully be defined by a careful consideration of need. It can be argued that the approach taken should relate to a 'needs based curriculum' rather than one based on a classically defined 'body of knowledge' which might be more applicable in subjects such as mathematics. Respondents felt that in some schools curriculum planners and managers may be of the view that the delivery of ECDL could be presented as delivering digital literacy with a possible school model consisting of three 'pathways' with a percentage of the cohort:

- Being entered for a GCSE in computer science
- Being directed towards 'digital literacy' delivered as ECDL
- Having no coherent and timetabled input for Computing

Such a model raises a range of concerns regarding the assumption by some curriculum decision makers at school level that 'digital literacy' is effectively designed around 'computer skills', in particular the capacity to undertake routine tasks with 'office software'. Such a view contrasts sharply with more developed views of digital literacy in particular that of [JISC](#) where a range of strands are identified including:

- Information, data and media literacies
- Digital creation, innovation and scholarship
- Communication, collaboration and participation
- Digital learning and self development
- Digital identity and wellbeing

3. Value and relevance

- 3.1. In considering the 'value' of ECDL as a course contributors identified two main themes. Firstly the issue of qualification 'value' in terms of its currency within the metrics of school performance and secondly, the issue of the 'value' of the course was discussed in relation to the course content and the degree to which the learning could be applied.
- 3.2. It was felt by many that valuing ECDL as the equivalent of a GCSE in terms of the school performance metric was inappropriate. A view was offered that the nature of the course, its narrowness and skills focus did not constitute what would normally be expected of a GCSE course. A further issue raised was that this equivalence rather than the relevance and value of the learning was the key driver fuelling the increased uptake in many schools.
- 3.3. Some contributors noted with irony that when the course was delivered in a particular way the 'drill and practice' pedagogy and focus on 'office skills' was leading to many pupils being offered an experience which closely resembled the worst aspects of some ICT courses which have been so heavily criticised and used to justify the need for radical curriculum reform.
- 3.4. It was noted by some that the course could be considered to be a simple and efficient way of ensuring all pupils become fluent with basic functional skills. Whilst such 'office skills' clearly do offer value it was felt that where some schools had entered pupils for ECDL they may seek to claim that this constituted 'the computing curriculum' for the majority of pupils not studying computer science GCSE.
- 3.5. Some contributors offered that in some cases ECDL provides a 'backup' for pupils who might not otherwise gain a qualification. If, as should be the case, there is parity of difficulty between qualifications within a particular level and ECDL has GCSE 'equivalence' then this should not be the case.
- 3.6. The issue of "skills businesses need" was discussed and it was noted that ECDL is a relatively simple way of acquiring these skills. However, some questioned the relevance and scope of these skills in relation to the broader digital skills needed by a workforce. Whilst ECDL might develop skills in the use of word processing and presentation software it was felt that pupils may still lack important skills and may not be able to apply the 'office skills' acquired in a context other than those in which they had encountered them.
- 3.7. In considering the value of ECDL within the wider curriculum matrix it was suggested by some that the course and qualification might have significant

value for pupils but only as part of a broader and well planned computing curriculum.

4. Approaches to teaching and learning

- 4.1. Whilst the ECDL can be integrated into a wider learning experience it was felt that the context within which it was being deployed coupled with the nature of the content and assessment mechanisms favoured a compressed 'drill - practice - test' model. Some contributors suggested that this model of teaching and learning has fundamental flaws in relation to the development of pupils critical understanding and ability to flexibly apply the skills they may learn.
- 4.2. The model of deployment above led some respondents to suggest that in many cases pupils would not have opportunities to develop flexible problem solving skills and to solve problems creatively by combining a wide range of digital tools and services. Whilst the notion of 'office skills' can be seen as desirable in terms of 'work skills' the narrowness of the the qualification content and the pedagogic approach suggested by the nature of the course may fail to develop the critical user skills businesses require.
- 4.3. It was felt by some that the nature of the course and the compressed mode of delivery favoured made differentiation difficult and a "try till you pass" approach to learner diversity was noted in some responses. It might be argued that this may mean those passing the course after multiple attempts have learned little which will be retained or which can be applied outside the context of the course assessment mechanism.
- 4.4. In some cases the course was being delivered as 'enrichment' and in addition to a richer and broader digital curriculum experience. In such cases the development of software skills constitutes a useful addition to pupils learning and, if integrated in a manner which requires pupils to apply and so reinforce these skills, can be considered a useful but supplementary course.

5. Assessment and administration

- 5.1. Assessment is not a terminal activity and does not sit outside the process of teaching and learning. The assessment mechanisms associated with a particular course will exert a powerful force on the nature of the pedagogical approach deployed. In-turn, the nature and quality of the learning outcomes will be shaped by the teacher's choice of pedagogy. In the case of ECDL, it was felt that mechanisms of assessment suggested a narrow pedagogical approach with potential consequences for the ultimate value and practical utility of what is learned.
- 5.2. As with all mechanisms of assessment issues of 'efficiency', 'effectiveness' and 'cost effectiveness' are among the legitimate criteria which might be used in judging quality. Whilst minimising teacher input and 'mechanising' assessment may reduce costs and workload, consideration may need to be given to those parts of pupil understanding which cannot be reduced to a 'digital option', clicked, dragged and dropped or 'selected' from a range of options. Where we are seeking to develop digital capability including pupil's ability to apply technology critically and creatively in a range of contexts the value of 'e-assessment' requires careful consideration.
- 5.3. Some contributors felt that the nature of the course and its mode of assessment acted to shift the role of the teacher towards that of the process manager and administrator. Some reflected on the degree to which this might eventually lead to such courses being 'delivered' by support staff.

Conclusion

In considering the increased uptake of ECDL in the wider contexts of the school curriculum and the forces acting to differentiate the curriculum offer accessible to different groups of pupils it becomes clear that there are significant concerns over a range of areas. The table below outlines a summary of what were felt to be inherent positive and negative aspects of the course but those concerns felt to be most important related to the 'threats' that the large scale uptake of the course might present in relation to the need to provide all pupils with a broad and balanced curriculum for computing.

Strengths	Weaknesses
<ul style="list-style-type: none"> ● Can be delivered in a relatively short period of time. ● Can support the development of 	<ul style="list-style-type: none"> ● Does not constitute a curriculum for computing. ● Does not constitute a curriculum for

<p>basic office application skills.</p> <ul style="list-style-type: none"> • Can be delivered by staff with relatively low levels of subject knowledge. • Contributes to the school performance metric. 	<p>digital literacy.</p> <ul style="list-style-type: none"> • Can be problematic in terms of supporting the achievement learners covering a range of abilities. • Is not the equivalent of a GCSE in terms of breadth or challenge.
<p>Opportunities</p> <ul style="list-style-type: none"> • Offers an opportunity for curriculum enhancement or extension beyond an appropriate entitlement Computing core. • May offer a qualification to pupils unlikely to pass a GCSE. 	<p>Threats</p> <ul style="list-style-type: none"> • ECDL becomes the default 'Computing curriculum' for a large proportion of pupils who are not studying a Computer Science GCSE. • Pupil's exposure to teaching and learning in the subject computing is limited to a relatively small number of days. • Pupils undertake the course in a short space of time supported by staff without adequate subject knowledge. • Pupils are not able to critically apply the skills learned in a variety of contexts. • The teacher's role becomes 'supervisory'. • Pupils move on to HE, work and to be citizens without a broad understanding of digital technologies in a variety of contexts.

Integrated as an element within a broader computing curriculum experience or as an 'extension' or 'supplementary' course ECDL is considered by some to be a credible way to develop user skills in relation to 'office software'.

If ECDL is seen by schools to constitute the whole curriculum experience for computing for a significant number of children there exists a danger that we may find, as offered by the Secretary of State, pupils "***bored out of their minds being taught how to use Word and Excel by bored teachers***".

The ECDL is not inherently problematic but its mode of deployment suggests that it is a symptom of wider problems in relation to factors influencing curriculum decision making. In the case of the reform of the ICT/Computing curriculum we have emerging evidence of the reintroduction of internal selection by "ability" and of the 'grade currency' of qualifications acting to determine what pupils are compelled to study or are barred from choosing.

It is noted that these wider concerns regarding the sometimes unpredictable and often

counterproductive consequences of policy levers based on targets have been noted across the public and private sector.

Moving forwards

In seeking to explore the degree of divergence between ECDL and a 'broad and balanced' curriculum for computing the contributions made by respondents can be used to construct an evaluation framework which might be applied in assessing existing courses and in constructing new awards.

Such an evaluation framework for digital qualifications at KS4 might include the following criteria:

1. Does the course meet the needs of all pupils in relation to the nature and breadth of their roles as users, creators and digital citizens required to have the capacity to express an informed view on the how technology should be applied, developed and regulated?
2. Does the course offer a degree of challenge and flexibility of structure to meet the needs of a range of capabilities and interests?
3. Is the content chosen to ensure that the nature of what is to be learned constitutes a broad and balanced engagement with the subject appropriate for a school curriculum avoiding technical detail or context specific content which might be more appropriate for vocational education in a further education setting?
4. Is the course content sufficiently detached from course delivery and assessment frameworks to ensure that teachers have the capacity to manage teaching and learning in a way which supports a range of pedagogic approaches and appropriately differentiate delivery?
5. Does the course provide for authentic learning with opportunities to apply and re-apply skills, knowledge and understanding in a variety of contexts.
6. Does the balance and level of content provide for progression with respect to accessing and supporting further study both within and beyond the subject?

