Exploring the Evolution of Educational Technology Policy in Ireland: From catching-up to pedagogic maturity.

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Abstract

Many countries have launched national educational technology policies in the past number of decades aimed at increasing technology integration in schools. This paper analyses educational technology policy in Ireland from 1997 to 2017 and draws attention to an underlying economic agenda for technology integration in schools, set against a backdrop of neo-liberal discourses. The study found that the challenge of integrating technology is no longer understood as simply a challenge of ‘integration’ but rather as a realignment of the existing education system towards a more student-centred experience. Most recent policy also recognises the complex and contextually-bound nature of the associated change process suggesting a maturation of understanding in respect of the intersection between technology and education. The paper also highlights the symbolic function of policy and the role it plays in representing the educational system in a particular light to national and international audiences. Recognising the symbolic function of educational technology policy and the neo-liberal ideology underpinning it can help identify the reasons for the apparent
failures of past attempts to integrate technology in schools as well as informing future policy iterations.

**Keywords:** Educational Technology; Educational Policy; Technology in Schools; ICT in education

**Introduction**

Roumell and Salajan (2016) note that at the turn of the century, educational technology emerged as an important educational policy concern at national, international, and supranational levels. This concern, they argue was in response to the demands of a globalising economy and resulted in national governments responding to this apparent challenge through the implementation of various policies aimed at embedding technology into education systems. When one examines the international technology policy landscape there is a uniformity of response to the perceived challenge of integrating technology in schools. This uniformity is a result of significant ‘policy borrowing’ and the influence of ‘powerful and very persuasive agents’ such as the OECD and World Bank, the WTO, IFC, the European Union (Ball, 2013) and the increasing influence of the process of globalisation on policy at national and local levels (Rivzi & Lingard, 2010). As a result, and driven by fears related to international competitiveness, many countries have seen the launch of largely similar initiatives in technology in education over the past two decades. In addition to the similarities in policy, these policies are also increasingly typified by, ‘increased involvement of business, social enterprise and philanthropic organizations in the way that IT education policies are produced and translated into action (Player-Koro et al, 2018, p. 683).

Thus the ‘new orthodoxy’ of education and the ‘global policy paradigm’ has linked improving economic outcomes with tightening the links between schooling and productivity and employment and enhancing student outcomes in employment related skills and competencies. Concepts such as the ‘information society’ and ‘the knowledge economy’ emerged against this backdrop symbolising the increasing colonisation of education policy
by economic policy imperatives. The ‘global policy paradigm’ reflects the influence of
globalisation which produces the contemporary ‘problems’ of education as well as the

Whether initially responding to the early development of ICTs and the internet or more recent
agendas focusing on mobile technologies, all policies have common rationales and
assumptions underpinning their roll-out. Exploring the dominant discourses present in policy
can help unearth the assumptions that have led to their establishment. In addition, as many
countries have now launched successive policy programmes of this nature over the past two
decades there now exists an opportunity to explore the longitudinal development of these
policies at a national level. Some studies, notably Roumell and Salajan (2016) and
McMillan-Culp, Honey and Mandinach (2003) have explored the historical development of
these policies in the US. Similarly, Salajan and Roumell (2015) have also explored the
development of EU e-learning policy in the past 20 years. However, apart from analysis of
national educational technology policies (see for example Zhao and Conway (2001)), there
appears to be a lack of studies exploring the longitudinal development of national policies to
determine how they have changed over time. Exploring the evolution of technology policy in
this way can help unearth the assumptions that underpin their implementation and, in
particular, establish if various economic, social and other forces influence the policy
directions over time.

As Rivzi and Lingard (2010, p. 4) note, ‘while policy is often synonymous with decisions, an
individual decision in isolation does not constitute policy. A policy expresses patterns of
decisions’. Looking at the development of educational technology policy in a longitudinal
way provides an opportunity to explore these ‘patterns of decisions’ and the intertextuality of
the various policy statements over time. In this way, the extent to which the key rationales
underpinning its use in schools have changed over time can be examined. Such
perspectives can also shed light on the direction of future policy.
Educational Technology: The International Policy Context

Before looking at educational technology policy it is worth exploring what is meant by the term policy. In reviewing the literature, Rivzi and Lingard (2010) note that policy is a highly contested notion and there are different perspectives in relation to what it is and its role. They differentiate between rational policies and symbolic policies. Rational policies are prescriptive and directed at addressing specific issues. For example, Hall and McGinty (1997, p. 441) note that, ‘policies are vehicles for the realization of intentions. As such, policies are intended to solve certain perceived problems’. In a similar tone, Considine (1994) argues that it is an action employed by government to support a preferred value. The extent to which these values are made explicit or are instead implicit within the policy is another issue to consider as these values can be evident as much by silences, either deliberate or unplanned, within the policy (Rivzi & Lingard, 2010). Rather than being focused specifically on changing practices in schools, policies instead can be symbolic in nature;

Symbolic policies are often political responses to pressures for policy. They usually carry little or no commitment to actual implementation and usually do not have substantial funding attached (Rivzi & Lingard, 2010, p. 9).

These types of policies tend to be aspirational in their focus and tend to appease public concerns and desires. Taylor et al. (1997, p. 3) for example, argue that educational policy has become a, ‘bureaucratic instrument with which to administer the expectations that the public has of education’. These expectations can be broad and varied depending on the various stakeholders, hence the policies that emerge can often be a compromise between different interest groups. Within these ‘messy realities’ (Ball, 1990) of the policy-making process, Taylor et al. (1997, p. 25) argue that rather than policy been seen as a systematic development of intended action, ‘in reality most policy is developed in a more disjointed, less rational and more political fashion’. Such policies, according to Rivzi and Lingard (2010) offer imagined futures presented in a simplistic manner that does not take into account actual realities. They further add that such symbolic policies are, ‘designed to provide a
general overview, leaving a great deal of room for interpretation. To use another metaphor, a policy is designed to steer understanding and action without ever being sure of the practices it might produce’ (p. 5). Policies which are symbolic in nature can hence be a political device used to indicate awareness and interest in a particular area of interest in the absence of a more clearly defined and thus functional policy. As set out by Cornbleth (1990) the appeal of such policies lies in the ‘illusion of progress’ which they engender, creating an illusion of a State and national education system which is responsive to perceived needs and interested in modernising. This reflects an ‘onwards and upward’ view of the world that favours ongoing change and improvement, but mainly at a surface level.

Educational technology is no exception and indeed technological changes have brought increased demands from different groups for educational change in schools. Thus, policy related to educational technology, must serve many different stakeholders. To parents the policy must present a government’s responsiveness in keeping pace with technological development and its commitment to ‘modernising’ the education system as technology is increasingly not only seen as modern and progressive, but also as a determining factor for social change leading to better education and better outcomes (Pereira and Pereira, 2015). Within the techno-positive culture that currently exists, where educational technology is synonymous with good teaching and student-centred pedagogies (Kompf, 2005; Hammond, 2014), governments must be seen to respond to these opportunities. As Player-Koro et al., (2018, p. 696), speaking about the marketing of educational technology to the public, note;

One dominant discourse was the primacy of technology as a mechanism for change, improvement and solving of problems. This is a long-standing feature of the ‘selling’ of education technology.

To the wider public, and increasingly to the business and industry sector, educational technology policy must emphasise its role in maintaining the nation’s economic competitiveness by appropriately responding to changing labour market demands. The influence of economic policy imperatives has contributed to a shift towards a neoliberal
ideology consistent with the commodification, consumerisation and commercialisation of education. Such is this association with economic competitiveness Roumell and Salajan (2016) argue that, ‘e-learning policies are steeped in general rhetoric regarding global competition and the development of human resources’ (p. 366). This economic focus is not confined to educational technology policy however, as it is a dominant discourse in wider educational policy;

educational purposes have been redefined in terms of a narrower set of concerns about human capital development, and the role education must play to meet the needs of the global economy and to ensure the competitiveness of the national economy (Rivzi & Lingard, 2010, p. 3).

Seen through this lens, Servage (2009) contends that such policy should be recognised as rhetorical devices that promote the idea that education and technology are key to competitiveness in the global economy. Thus, these policies not only respond to this global neo-liberal agenda, they also reify the discourse calling to address the imperatives of the emerging global knowledge economy (Rivzi, 2007).

Away from the economic agenda, policy in this area must also be cognisant of teachers and therefore it must temper the discourse of change and innovation to avoid alienating teachers through overly excessive claims and ambitious goals. Finally, to an international audience, such policy plays a role in positioning the nation’s education system mindful of international comparisons and league tables (Ball, 2013). Hogwood and Gunn (1984) note that policy can be seen in many ways and commonly among them is a specific set of goals or objectives for implementation. However as mentioned earlier, to an international audience it may also play the role of ‘a general expression of general purpose or desired state of affairs’ (p. 13). Hence rather than reflecting reality or a defined set of goals, it may have a more symbolic function positioning and presenting the education system in a particular way to both an internal (national) and external (international) audience.
Unpacking the rationales for technology in schools

It is perhaps not surprising then that when one unpacks the different rationales for technology use in schools, evident in policy documents, several different rationales are present. These rationales have tended to fall into four types of categories: Educational, Economic/Vocational, Social and Catalytic (Younie & Leask, 2013; DES, 1997). Educational rationales refer to the justification for technology use in terms of how they can enhance the learning experience of students or facilitate more student-led educational practices. The Economic/Vocational rationale refers to the use of technology in schools to prepare students for roles in the STEM field and to advance the economic competitiveness of the country through the development of more technically skilled graduates. The social rationale is concerned with the issue of inequality and thus is aimed at ensuring that all students have adequate levels of digital literacy skills. Finally, the catalytic rationale justifies technology use in schools based on the effect it can have on changing educational practices from teacher-led didactic instruction to more student-led learning.

One could argue that these different rationales reflect the various interest groups’ concerns in relation to their use. For example, in their analysis of educational policy in the United States over a twenty-year history, McMillan-Culp et al. (2005) identified three main rationales for investment, namely: addressing challenges in teaching and learning (the educational rationale), seeing technology as an agent of change (the catalytic rationale) and addressing economic competitiveness (the economic rationale). They also noted that ‘transforming education through technology’ was one of the assumptions underpinning the reforms analysed.

As the previous point from McMillan-Culp et al., (2005) highlights, policies on educational technology are not written in a vacuum. As well as having to serve competing interest groups, they are also written within a climate of globalisation and techno-positivity where belief in technological progress and ICT is rarely questioned (McGarr and Gavaldon, 2018; Player-Koro, 2013; Robertson, 2003). As a result, these policies frequently tend to
foreground and emphasise technology and its capabilities rather than positioning them in a broader educational context (Brooks, 2011). These policies not only outline government positions and intentions, they can also determine the discourse of educational technology and define the limits of our available thinking by making some ideas about technology more pervasive than others. As Brooks (2011, p. 5) notes;

How we write and talk about technology in education is worth examining because it frames, constructs and becomes a part of what it is we want our schools to be like and how we want our students to experience learning.

Within this in mind, this paper aims to explore the development of ICT policy in Ireland over the twenty-year period from 1997 to the 2017. Set in the context of prevailing trends with respect to neo-liberalism and globalisation, the study aimed to explore the rationales underpinning the planned investment during this time period and examine the extent to which these rationales, and the justification for the investment, changed over time. Through this analysis it is hoped that the origins of the current discourse surrounding technology in schools can be unearthed.

**Selecting the analytical framework**

In analysing the policies throughout the 20-year time period, the research employed a content analysis examining references in the policy documents to the three main rationales for technology in schools outlined previously, namely: Educational/catalytic, Economic/Vocational, and Social. Whilst other theoretical approaches exist to analyse the values within policy, such as Wirt, Mitchell and Marshall's (1988) four basic values within educational policy (quality, equity, efficiency and choice), within the educational technology field the rationales detailed above have been established previously (Younie & Leask, 2013) and were thus selected on the basis of providing an appropriate frame for analysis within the current study. In addition, these rationales were explicitly cited in the first Irish policy related to educational technology (DES, 1997) and therefore the opportunity existed to follow the evolution of these rationales in the intervening years.
Having sourced all Department of Education and Skills policy documents published between 1997 and 2017, each was read in their entirety to get an overall picture of the policy. Both researchers then analysed each document with two specific questions in mind:

- What appears to be the main focus of the initiative as described in the policy document? This was normally foregrounded in the executive summary or introduction to the policy.

- What is the dominant rationale for the proposed technology integration, i.e., was it Educational/catalytic, Economic/vocational or Social? Again, this was frequently mentioned early in the document but also tended to be mentioned throughout when specific aspects of the policy were described.

Selection of sources

In conducting our analysis, we identified all technology in education policy's focused on primary (4-12yrs) and post-primary (12-18yrs) schools in Ireland in the period 1997-2017. These consisted of the following documents:

- Schools IT 2000 - A Policy Framework for the New Millennium (DES, 1997)
- Smart Schools = Smart Economy: Report of the ICT in Schools Joint Advisory Group to the Minister for Education and Science (DES, 2009)

These documents ranged in length from over 60 pages to shorter (circa 10 page) publications. These policies were sometimes preceded by a scoping type of report which led
to the eventual policy document or subsequently followed by implementation plans or follow-on goals that related to the original policy. The compiled documents could be readily grouped into three phases as reflected above: an initial phase, a midterm phase and a more recent phase.

The analysis is presented chronologically to capture the development of the policy during the three phases evident.

Phase 1 (1997-2003) Catching up and joining the international ICT race

The launch of Schools IT2000: A Policy Framework for the New Millennium (DES, 1997) in 1997 marked the first ever policy for ICT in Irish schools. This programme involved an initial expenditure of £40million over three years and at the time was the single biggest investment in an educational initiative in the Irish state. Schools IT2000 aimed to address the development of technology use in primary and post-primary schools and formed one element of the Governments' Education Technology Investment Fund which was made up of a total of £250million. Schools IT2000 focused on four main areas which were present with its constituent strands: technology infrastructure, training for teachers, pilot projects and support services. In the context of these strands, direct grants were provided to schools so that they could purchase equipment, short mainly skills based courses were developed and provided to teachers throughout the country, whilst in excess of two hundred schools participated in pilot projects aimed at identifying and disseminating good practice in educational use of ICT. In addition an online resource (ScoilNet) was developed with the aim of providing resources and support to teachers.

In the lead in to Schools IT2000, what might be described as very public pressure was applied to the DES by a number of publications which addressed the emerging ‘information society’. Particularly significant was the Information Society Commission report which ranked Ireland at 23rd in the world in terms of readiness for the information society (DES, 1997). Such influences may be considered as advancing an economic rather than an educational rationale
for technology as external influences including those within the industrial and business sector drove the policy agenda, at a time of greater openness within the DES and in the presence of a Minister for Education who recognised the potential for development in this area. The optics of ‘catching up’ and keeping a pace with other developed countries in terms of economic competiveness was reflected in the policy document which cited how: ‘Ireland lags significantly behind its European partners in the integration of information and communication technologies (ICTs) into first and second-level education’ (DES, 1997, p.1).

Detailing the rationale for implementing ICTs within schools on the basis of social, economic, pedagogic and catalytic grounds, the integration of ICTs into classrooms was seen as an important goal, with ICT integration correlating with wider educational aims, although there was no attention in the policy document to integration in the context of the curriculum, and the various curriculum subject areas. The emphasis on integration in every school and right across the curriculum was inherent in the guiding principles outlined;

ICTs need to be integrated into first and second-level curricula and teachers need ready access to high quality supporting resource materials, including software’ and ‘there is no one formula for integrating technology into the classroom and the school curriculum. The nature and level of technology use in any school will depend on the school’s educational priorities (DES, 1997, p.2).

Given the lack of educational clarity or articulated underpinning philosophy, the emphasis on integration may be viewed as aspirational rather than as a planned curricular innovation encompassing the thinking, curricular revisions and clarity of implementation necessary for it to impact on practice at the school and classroom levels. The desire to integrate technology across the curriculum and in every school was also flagged as a priority in the context of economic development, further adding to the lack of clarity regarding the rationale and goals for ‘integration’ evident: ‘The need to integrate technology and learning right across the curriculum is a major national challenge which must be met in the interests of Ireland’s future economic well-being’ (DES, 1997, p.1). Indeed, reference to Ireland’s ‘future economic well-being’ was made a number of times within the document. Hence the desire to embed
technology within schools was based on a number of perceived goals and benefits albeit with little attention to the detail and weighting of these evident within the policy document, which reflected the terminology and rhetoric of positivity which was evident globally at the time;

As we approach the dawn of the 21st Century it is vitally important that we grasp, in partnership, the opportunities presented by the information age. This ICT initiative will place our pupils and teachers at the cutting edge of international innovation and development in education and help to secure important skills necessary to our future economic wellbeing (DES, 1997, p.1).

Thus, it is argued that there was a simplicity of approach evident in Schools IT2000 based on the premise that provision of infrastructure within existing organisational structures, coupled with basic IT skills for teachers, would lead to worthwhile (yet undefined) outcomes. The follow up policy, Blueprint for the Future of ICT in Irish Education (DES, 2001), committed further funding so as to in-effect continue the priorities identified via Schools IT2000 without any specific new targets or objectives.

With the benefit of hindsight this phase of policy development and implementation may be described as Ireland ‘catching up’ and joining the international ICT race which was prominent at the time as reflected in EU policy on e-learning (Salajan & Roumell, 2015). Looking at the policies at this time though the lenses of economic, social and educational rationales, it is evident that the policy was motivated by primarily external drivers and based on a strong economic rationale. In terms of the social rationale, concerns were expressed about a potential, ‘two-tiered society of information haves and have-nots’ (DES, 1997, p. 5) but references to participation in what was then called the ‘information society’ were vague and ill-defined. While the educational rationale was referred to throughout the policies in this phase, the clarity in terms of the intended educational goals or outcomes was less evident. Given the prominence of the external and economic factors it is perhaps not surprising that the specificity in terms of actual implementation was limited and that the economic rationale was prominent. Selwyn (2011, p.66), in noting the dominance of such political and economic motivations, drew attention to such policies as primarily ‘symbolic
interventions’ which are not really intended to enact change but are a high-profile means of governments being seen to be doing something about the information age in the context of globalisation, the rise of neo-liberalism, and the wider political, economic and ideological agendas. This also rationalises the dominance of a techno-centric approach as symbolically the provision of infrastructure and teacher professional development are more readily visible and achievable than what might be considered as more meaningful educational change, encompassing its many layers of complexity. In this regard Selwyn (2011, p.59) sees technology policy as not having purely ‘educational’ intentions and that its ‘fuzziness’ serves to mask the ‘social, political and economic agendas it is used to propagate.’

Phase 2 (2008 – 2013) Responding to the changing lives of young people?
The late 2000’s saw a period of renewed interest in national policy for technology in Irish schools attributable at least in part to the presence of an enthusiastic Minister for Education, reflective of the influence of a previous Minister in respect of the previous Schools IT2000 policy. The National Development Plan (2007-2013) promised investment of €252 million for ICT in schools which underpinned the publication of Investing Effectively in ICT in Schools 2008 – 2013 (DES, 2008a). As funding was cut by €100 million due to the onset of economic recession Smart Schools = Smart Economy (DES, 2009) proposed activity based on a revised budget of €152 million. Although not raised to ‘full’ policy status Smart Schools = Smart Economy (DES, 2009) did provide a backdrop to ongoing expenditure on infrastructure and other activities undertaken by the implementation agency, the NCTE, in the aftermath of its publication.

Investing Effectively in ICT in Schools 2008 – 2013 (DES, 2008a) presented an appraisal of the situation at the time with regard to the then current status and impact of technology in Irish schools, in contrast to its predecessor, the ‘Blueprint’, which employed language of ‘exceptional progress’ and ‘cutting edge’ (DES, 2001, p.2) out of kilter with the reality of the scenario at the school and classroom levels at the time (DES, 2008b). The Investing
Effectively report identified seven main areas for investment: professional development encompassing both pre and in-service and whole-school-based approaches, software and digital content, ICT infrastructure, broadband, technical support, cohesive implementation structures and supports and a research dimension based on establishing models of best practice through innovative projects in schools. Although providing focused recommendations in relation to each of these seven areas, there was no direct attention to issues of curriculum and assessment. The recommendations in terms of expenditure were heavily leaden towards the infrastructural with infrastructure, broadband and technical support accounting for €255 million of a total proposed spend of €337 million with the remaining monies dedicated to continuing professional development, software and digital content, research and support services.

The rationale for Investing Effectively reflected a shift in emphasis from technology provision (as had been evident in the first policy phase) to the resultant learner experience, set against the backdrop of a changing context educationally. As set out in the introdutory section of the document;

Learning is changing. A pivotal force in bringing about this change is the use of information and communications technology (ICT) which provides richer, more immediate, world-relevant educational resources and opportunities. When used well, ICT enriches learning and enhances teaching. It invigorates classroom activities and is a powerful motivational tool that encourages learners to progress in more personalised and self-directed ways (DES, 2008a, p.1).

The document addressed the possibility of making learning more reflective of students' social and personal uses – meshing the informal with the formal and moving towards the acquisition of skills which would contribute to students future learning prospects, such as to ‘enable all students to become confident and self-directed learners’ (p.1). This was also reflected in the underlying objective set out;

The underlying objective of ICT integration in schools is to facilitate and promote a learning environment that takes full advantage of technology in teaching and learning and encourages all students to become self-assured, self-directed learners – abilities which they will come to value throughout their lives’ (p.13).
Realisation of this objective by schools was framed by the necessity for them to engage in a ‘process of transforming themselves into purposeful e-learning environments’ (p.11) based on development of a whole-school vision and ICT culture which facilitates students in using technology in multifaceted ways relevant to 21st century and life-long learning skills (p.11/12). The recognition of the need for planning and change at the school level to capitalise on the possibilities afforded by ICTs is in contrast to the more linear, simplified version of the implementation process which appeared to underpin Schools IT2000.

The follow-up Smart Schools = Smart Economy (DES, 2009) report provides a very concrete example of the external business/commercial influence in relation to ICT policy in the Irish setting. Comprised mainly of representatives from the ICT business sector (supplemented by DES and NCTE representation) this Group was founded in the aftermath of Investing Effectively when the funding of €252 million initially committed was no longer available. This report emphasised the ‘economic and social imperative’ (DES, 2009, p.14) and identified five priority areas: infrastructure including technical support and provision of a virtual learning environment (VLE), teacher professional development, ICT planning and budgeting, digital content growth and enhanced broadband for schools. Whilst focusing on mainly infrastructural elements the report did recognise and endorse the NCCA’s (2007) ICT Framework ‘as an enabling framework for teachers to embed ICT in curriculum and assessment’ (DES, 2009, p.22).

In similar vein to Investing Effectively, Smart Schools = Smart Economy also highlighted the potential role of technology in enhancing the ‘learning experience’ and detailed a learner-centered vision based on the acquisition of a range of critical skills, albeit with much more of an emphasis on the potential economic benefits, including statements such as: ‘with renewed focus and investment in the development of a digital learning environment, Ireland can foster the key skills for a competitive knowledge based economy’ (DES, 2009, p.14). Much of the funding committed via Smart Schools = Smart Economy (DES, 2009) was allocated to schools
Thus it may be argued that whilst the economic imperative and the emphasis on the provision of infrastructure was still evident in this phase it marked something of a progression in the thinking and understanding around ICT in Irish schools in the sense that it placed greater emphasis on the resultant learning experience and outcomes and recognised the necessity for planning and change to take place at the school level to enable the realisation of these experiences and related outcomes. Hence this phase appears to reflect a shift towards recognising the affect developing digital technologies were having on the lives of learners and that schools should begin to reflect this new digital reality in their contexts, largely reflecting the shift in policy at an EU level to encompass these wider social concerns and focus on lifelong learning (Salajan & Roumell, 2015). This reflects a different type of ‘catch up’ compared to the first phase: that of schools catching up with the digital lives of young people who by this stage were used to using their own digital devices to access and create information and content as part of their own personal and social interactions. Also evident in this phase is a reduction in the very optimistic rhetoric surrounding technology’s potential catalytic effect on education. This appears to have been tempered by a realism that previous attempts have not led to significant change in practices within schools. The resultant emphasis on the provision of teaching computers and digital projectors would appear to reinforce and merely digitise traditional teacher-centred approaches to instruction rather than to enable the more learner-centred experiences espoused in much of the narrative within the policy documents related to this phase. The explicit linking of digital technologies in schools to economic development is also a noteworthy aspect to this phase of policy development, particularly reflected within Smart Schools = Smart Economy (DES, 2009). Concerns over learners missing out on the ‘information society’, which were evident in the first policy phase, were replaced by concerns about preparation for the ‘knowledge economy’. While educational rationales are present at this stage, more so within InvestingEffectively (DES, 2008a), it can be argued that Smart
Schools = Smart Economy (DES, 2009) reflects the greatest level of prominence afforded to the economic rationale across the three phases under examination.

Phase 3 (2015 to present) - Towards pedagogical maturation?
The Digital Strategy for Schools 2015-2020 (DES, 2015) was launched in October 2015 after a significant period of policy ‘lull’ in relation to education technology in the Irish context. The Digital Strategy reflected a continuation of the emphasis on transforming and modernising education which was evident in Investing Effectively in the previous phase and presented a relatively comprehensive articulation of a range of issues and factors impacting on this area of educational provision: ‘ICT can play a central part in transforming teaching, learning and assessment practices for teachers and students, in a high-quality 21st century education system’ (p.6). The potential for enhancement of the student experience, skills development (particularly 21st century or key skills), and ICT integration were also evident in a policy document which set out to address four key areas: 1. Teaching, Learning and Assessment using ICT; 2. Teacher Professional Learning; 3. Leadership, Research and Policy; and, 4. ICT Infrastructure. It is notable that in terms of its positioning, Teaching, Learning and Assessment and Teacher Professional Learning was given prominence over infrastructural development although the related Government press release placed emphasis on ‘Dedicated multi-annual funding to schools to invest in technology’ and the roll-out of high-speed broadband.

The Digital Strategy reflected some recognition of the significance of context at both national and school levels (evidence by reference to existing reforms and the unsuitability of a ‘one size fits all approach’ (p.8)) and the associated complexity of embedding ICT within a system of education with a greater level of grounding in relevant academic literature (including the UNESCO & TPACK Frameworks) than had been the case in previous policy documents addressing this area. The difficulties posed by existing cultures and ‘traditional school practices’ was noted (p.19) as well as the challenge of ‘rethinking the role of teachers’ (p.11)
and other key actors such as students, schools and parents. The need for assessment reforms was also noted (p.24) although the possibilities addressed were mainly in context of ICTs as assessment tools including the possible employment of ePortfolios.

The rationale for the Digital Strategy reflected the reform/transformational agenda coupled with an emphasis on learner-centred skills/skills development. This was reflected in the articulation of the ‘Purpose of the Strategy’ (p.15):

The Strategy will serve to enhance existing reforms and it will inform those that will be implemented over the coming years. This will be achieved through all future curricula reforms taking account of the key role ICT can play in helping transform our education system so that our learners are equipped with the knowledge and skills required for the challenges posed by a rapidly changing world.’

It was also reflected in the emphasis on ‘integration’ which was recognised as ‘rarely defined.’ In the case of the Digital Strategy the vision for integration was set out as follows: ‘The Department's vision of ICT integration in Irish schools is to: Realise the potential of digital technologies to enhance teaching, learning and assessment so that Ireland’s young people become engaged thinkers, active learners, knowledge constructors and global citizens to participate fully in society and the economy’ (p.5). This represented a more learner-centered vision of ‘integration’ reflecting the linkage with key-skills development than had been evident in the previous vision of integration as espoused in Schools IT2000 policy.

The Digital Strategy reflected a degree of pedagogical maturity being underpinned by five key principles, including ‘a constructivist pedagogical orientation’ (p.8). It also outlined many possibilities for implementation to dovetail with existing curricular reforms at post-primary level. In this way the Digital Strategy may be considered as planting the ICT flag in the then current reform landscape rather than providing a detailed statement of priority or weighting for the many possibilities of ICT/Educational technology in its own right. The recognition of how ICT policy can augment and facilitate the realisation of other school-based reforms such
as the revision of the lower secondary level curricula marks a significant shift from the
previous two policy phases where ICT policy appeared to stand alone from other school-
based reforms and from other reforms current within the education system at national level.
Notwithstanding the emphasis on the use of technology to augment existing curriculum
reforms in schools, this phase of the policy appears to conflate both the social and economic
rationales as one single issue where technology can help pupils to fully participate in society
and the economy;

Realise the potential of digital technologies to enhance teaching, learning and
assessment so that Ireland’s young people become engaged thinkers, active
learners, knowledge constructors and global citizens to participate fully in society and
the economy (DES, 2015, p.5).

It may well be therefore that the current discourse has somewhat shifted to intertwine both
the social and economic rationales as one. This may indicate that the economic rationale is
now a taken-for-granted element and as self-evident as any social rationale.

Overall analysis and implications

What’s the problem?

Having explored the development of educational technology policy in Ireland over the
twenty-year period (1997-2017) there are a number of trends evident from this analysis.
Firstly, as has been highlighted, from analysis of the first policy in the area of educational
technology in 1997, these policies were used to highlight a perceived crisis or problem.
Rivzi and Lingard (2010) for example, note that policies are frequently used as responses to
perceived problems and that discursively they work to construct problems in certain ways.
The manner in which the problem is presented and described can give the policy legitimacy.
In addition, how the policy is presented can also present particular solutions as necessary
and expected and in doing so foreclose other interpretations of the problem and hence
responses to it. The ‘crisis’ presented in the first phase was justified through international
comparisons in relation to technology use and the rankings of external supranational
agencies. This highlights the early international influences on educational technology policy that has remained to this day.

Proceeding phases of policy in the second and third phases had less focus on the infrastructural deficit and instead shifted towards levels of usage. That is not to say that investment in technological infrastructure is no longer a key concern of policy implementation in this area (a review of the expenditure figures indicates clearly that this is not the case) but that rather investment in infrastructure has been repositioned within the policy narrative and replaced with more educationally grounded concerns such as the desirability of student-centred learning experiences and environments, and the necessity for a transformational pedagogical agenda to support and enable the possibilities afforded by ICTs. Here again it is evident that the constructivist discourse surrounding the use of educational technology remains very prominent. The reactionary tone and sense of urgency evident in the first policy phase commencing in 1997 is no longer evident in the subsequent policy phases suggesting that from a policy perspective Ireland may perceive itself as being on level footing with its international counterparts in terms of the provision of technology infrastructure and use within schools. There is a body of data which suggests that this may be warranted (if only partially) with the OECD (2004), PISA (2009) and the OECD (2015) suggesting a trend whereby the availability of technology in Irish schools is average by international comparison but below average in terms of its educational use. Hence, in terms of 'keeping up with the Joneses' the challenge is now presented as how to use the technology effectively as opposed to simply stocking schools with greater amounts of it.

Progressing through the various policy phases there is also less hyperbole evident in relation to the potential effects of technology in schools. Hence the catalytic rhetoric of technology and educational change, a hallmark of the initial policy phase from 1997 to 2003, has been replaced by a more tempered set of expectations reflecting somewhat greater specificity as to the prioritisation for technology employment within schools, for example linking student
experiences with key-skills development in the most recent phase. Additionally, the more recent policy that aligns ICT development with various other policy developments in the education sphere (including curriculum reforms at lower secondary level and literacy and numeracy strategies) reflects a shift in terms of how technology is viewed, as a constituent component of wider educational provision and related pedagogy, rather than as a separate stand-alone and ‘bolted-on’ entity. Embedding ICT in the broader set of educational reforms may also reflect technology’s move from the periphery to the mainstream, in that it is no longer seen as a stand-alone initiative but more so a tool to help facilitate and achieve other educational reforms and goals such as those set out in the national literacy and numeracy strategy and the priorities evident in the proposed lower secondary education curriculum reforms. Much of the same can be said regarding the current renewed emphasis on Computer Science as a subject within the curriculum with the educational rationale tending to focus on the potential for achievement of broader educational outcomes such as problem solving, computational thinking and related analytical skills.

The dominant economic rationale

Previous studies exploring the justifications for technology in schools within policy documents have identified various economic, educational and social rationales for their use. In the three successive phases of development in Irish policy all the aforementioned rationales remain evident. The initial phase espoused and emphasised an economic rationale, and the most recent phase reflected a remarkably similar yet somewhat broadened vision for technology in schools to encompass the realisation of learner key skills with equal prominence given to social and economic rationales as the two excerpts from 1997 and 2015 highlight:

Schools IT2000 (1997): The need to integrate technology into teaching and learning right across the curriculum is a major national challenge that must be met in the interests of Ireland’s future economic wellbeing.

Digital Strategy (2015. p.5): The Department’s vision of ICT integration in Irish schools is to: Realise the potential of digital technologies to enhance teaching, learning and assessment so that Ireland’s young people become engaged thinkers,
active learners, knowledge constructors and global citizens to participate fully in society and the economy.

Whilst both policy statements are predicated on ‘integration’ it is evident from the most recent policy statement that many possibilities for integration are still on the policy agenda including digital literacy provision, short courses at lower-secondary level, a formal computer science type subject at upper-secondary level, as well as use in the teaching and learning of curriculum subjects. The consideration of such a range of options without any clear prioritisation or weighting reflects the ongoing question of definition in respect of the role of technology and technology-based outcomes in schools and ultimately what is meant by integration. It also reflects the competing rationales and their respective influence as each possibility considered can be seen to reflect or prioritise the dominance of one particular rationale (namely the economic rationale) over others.

When one considers the strong economic rationale for the integration of technology in schools it is worth considering why this is present. At one level, it is not surprising given the ever-increasing presence of neo-liberal discourses globally in education policy. Hill (2004, 2007) for example has argued that globally an increasing neo-liberal agenda, reflected in educational policies aimed at developing human capital, has developed in the past number of decades. Ireland does not appear to be immune to this trend as Lynch (2012) notes, for historical and cultural reasons, that Ireland operates within an Anglo-American zone of influence and therefore it, ‘displays many of the features of its powerful neo-liberal neighbours in terms of its social, health and education policies’ (p.91). Similarly, according to Hennessy and McNamara (2011), neo-liberal market values have resulted in a commodification of knowledge within Irish education. This is evident the strong emphasis on developing human capital in polices so that pupils can participate in society and the economy as reflected in the two excerpts above. The presence of a significant multi-national technology sector, and its contribution to the policy making process in the STEM education
area, is also a contributing factor to this focus. Hence, it can be argued that both international influences as well as national factors have led to this economic focus.

In relation to this economic focus and rationale for technology integration in schools, Ireland does not appear to be alone however. In their analysis of educational technology policy in Canada, Ireland and Northern Ireland, Austin and Hunter (2013) found that powerful economic and political forces shaped educational technology policies in the three jurisdictions reviewed. Similarly, the analysis by McMillan-Culp et al., (2003) of technology policy in the US over a 20-year period noted a similar economic focus. They concluded that throughout the policies reviewed references were frequently made to economic and social shifts highlighting the critical importance of technology skills for future employment and in helping to maintain the economic and political dominance of the United States globally. Younie and Leask (2013) identified a similar emphasis on the economic rationale in UK policy and a similar emphasis was noted by Roumell and Salajan (2014) of their analysis of US policy. They noted that;

E-learning policies are steeped in general rhetoric regarding global competition and the development of human resources as a means to the end of economic innovation and competition … E-learning and educational technology policy must be understood as rhetorical devices that promote education and technology as a means to compete within the complex context of competitive forces within the global knowledge economy (p. 366).

Recognising the symbolic role of educational technology

A significant body of research exploring the integration of technology in schools has lamented the failure of policy over the decades to achieve its stated goals and objectives. According to Cuban (2001) this focus on the educational effectiveness overlooks the importance of the political function of educational technology policy and the extent to which it captures the imagination of parents and the wider electorate. Hence these policies are as much symbolic as they are functional. Rivzi and Lingard (2010) note that symbolic policies are often political responses to pressures and that they frequently have little or no
commitment to realising the stated intentions but instead are primarily media spin. Thus, they play an important role in legitimising particular views.

The symbolic function of such policy is one that has been given less prominence in the educational technology literature to date and one which suggests a level of political naivety within the educational technology research field to these wider political agendas. That being said, it would appear that the symbolic nature of previous policies in the Irish context is moving to adopt a more rational/functional purpose. This is evident in the very explicit manner in which technology integration goals are now aligned with wider curriculum reforms within the schooling sector. In this way the technology is seen as a tool to support and facilitate these curriculum reforms rather than an end in itself. Up to this point it could be argued that the symbolic policy created a vacuum which legitimised technology integration in schools without a clear vision of how it was to be realised in practice. Such vacuums are typically filled by commercial interests.

Given the length of time that education systems across the globe have grappled with the challenge of technology integration, there is now a unique opportunity to explore the evolution of policy. Further studies exploring the rhetorical function of educational technology policy, and the longitudinal nature of their development, could help to unpack the underpinning assumptions of such educational reforms and the extent to which their goals are ultimately achievable. This may help shift the focus away from questioning why educational technology has not achieved the level of integrations as envisaged towards a more critical scrutiny of educational technology policy and the role it plays for various stakeholders in the education landscape.

**Conclusion**

The nature of information and communication technologies have changed dramatically in the past two decades and it is apparent that educational policy in Ireland has tweaked its orientation in response to these changes. Phase one saw a drive to bring technology into
schools without any detailed consideration of how it would be specifically used. This phase was predicated on embedding technology within existing organisational structures and on a techno-centric logic which correlated the availability of technology with worthwhile uses and outcomes. Phase two recognised the ‘shifting sands’ and how technology was transforming the lives of young people outside of school and hence the need for schools to realign the learning experiences offered in the formal context with those in the social and personal spheres of their learners. The more recent phase three appears to recognise the need to change the education system to facilitate more independent and student-centred learning for technologies to be capitalised on effectively. Hence, while it may have been presented as in effect the same problem for the past twenty years, i.e. the problem of ‘technology integration’, in reality the ‘problem’, and the apparent understanding of it, has changed during this period of time. It can be argued that the problem is no longer understood as simply a challenge of integration but rather a realignment of the existing education system towards a more student-centred experience recognising the changing world of young people, and potentially of education, as a consequence of technology. The study also found however, that in the midst of these policy changes an underlying economic agenda for their integration in schools, fuelled by an increasing neo-liberal discourse, was evident across the three phases. It also highlighted the symbolic function of policy and the role it played in representing the educational system in a particular light to national and international audiences. Recognising the symbolic function of educational technology policy and the neo-liberal ideology underpinning it can help identify its future direction and the reasons for the apparent failures of past attempts to integrate technology in schools over previous decades. More recent policy has noted that technology adoption is complex and contextually bound and draws significantly on the social actors as distinct from the technical devices in the related change process. Reaching such a level of conceptual understanding may be considered as worthwhile progress: as well as being meritorious in its own right it also provides a necessary pre-requisite to meaningful change at the levels of practice and implementation.
Statements on open data, ethics and conflict of interest

Sources used in this study are accessible from the Department of Education and Skills website. Ethical issues related to research subjects are not applicable. There is no conflict of interest in the reporting of this study.

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