

# **Digital Literacy: Access, Participation and Communication for the 'Non-Literate' in the New Digital Age.**

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## **Abstract:**

*This paper arises from work undertaken by Special Education Support Service (SESS), within the context of the National Digital Strategy, which sought to develop support for teachers of students with Moderate and Severe and Profound learning disabilities in the areas of literacy and digital literacy.*

*The paper initially examines the changing concepts of literacy, with its parallels and dichotomies in concepts of digital literacy, with regard to Irish policy. The concept of 'The New Digital Age' is then explored, examining the recent convergence of a generation of 'digital natives' with truly ubiquitous technology and an unparalleled digital enculturation of young people. The consequences for those with cognitive disabilities, whose access and participation may be suffering an even wider 'digital divide', and the associated challenges for education, are also raised.*

*Drawing on this, a 'Digital Literacy Framework' is proposed with the purpose of supporting teachers in achieving curricular targets for this cohort of students through digital literacy, thereby facilitating access, participation, the making of meaning and communication.*

## **Introduction**

This paper arises from an initiative by Special Education Support Service (SESS) to support the teaching of literacy, using tablet technology, for students with Moderate and Severe/Profound General Learning Disabilities (GLD) within the context of the National Literacy and Numeracy Strategy (DES, 2011).

A number of questions were immediately provoked by this brief, particularly in relation to the teaching of students with Moderate and Severe/Profound GLD where language and conventional literacy may be very limited or absent – that is where, traditionally, students may traditionally have been described as 'illiterate'. Such questions included: What do we mean by conventional literacy and digital literacy in this context? Where does the concept of 'Language and Communication' lie within this frame? What kind of learning / teaching framework might teachers and students need in order to fully utilise ICT in this area? Where

does digital literacy lie in relation to the curriculum? Where does this fit within Irish education policy on literacy and digital literacy?

The concept of ICT as an ‘assistive technology’ to support conventional reading and writing is well understood and relatively well supported. Therefore, it is not the focus of this discussion. Rather, the emphasis is on the learning and teaching of students who have Moderate or Severe and Profound levels of GLD, especially within the range where conventional literacy is extremely limited or absent. As such, the concept of ICT considered here may be seen as being more closely related to the concept of ‘instructional technology’ as applied to teaching and learning (Edyburn, 2013).

While the national Literacy and Numeracy Strategy provides an impetus for this, cognisance must also be taken of the fact that, as digital media progresses, those with less access and support may be left behind in respect to participating in the digital world and benefitting from its advantages, thus increasing the ‘digital divide’. As the digital world has an increasing capability to enhance access, participation and benefit from education for students with GLD, and as the digital ecosystem offers unique advantages in terms of accessibility and new ways of interacting and learning, it is ever more important that those with greater literacy and communication needs should have structured learning opportunities to exploit these options. Teachers are equally in need of guidance and this document aims to explore the background to a usable framework of competencies that teachers may use in helping students access and benefit from the curriculum.

In addition, digital literacy is emerging as a key expression in twenty-first century education policy and practice but, while becoming common in parlance, it is not always clear what it actually means. Therefore, it is necessary to interrogate our current understandings of this term in order to clarify our understanding of its meaning when discussing literacy and learning.

### **What do we mean by literacy and digital literacy?**

#### Literacy

The meaning of literacy ranges from the relatively basic ‘ability to read and write’ to more subtle and conceptual meanings. The Department of Education and Training of New South

Wales described attempts at its definition as “... a moving target, continually changing its meaning depending on what society expects literate individuals to do” (NSW 2010:4). At one end of the spectrum of interpretations and definitions of literacy are the conventional and functional – for example students’ “ability to apply their reading and writing skills successfully and to speak articulately in a range of contexts and for different purposes” (Ofsted, 2011:9). Such definitions in education, along with literacy targets and frameworks to help their achievement, are sometimes influenced by particular priorities of the day and have been described as ‘operational’ definitions, that clearly indicate which knowledge and skills should be developed and how to use them (Stepic 2013:369).

An example of the development of the meaning of the concept beyond the purely operational is provided by the Department of Education and Skills (DES) in the *National Strategy to Improve Literacy and Numeracy Among Children and Young People 2011-2020*:

... literacy includes the capacity to read, understand and critically appreciate various forms of communication including spoken language, printed text, broadcast media, and digital media (DES, 2011:8).

Further fleshing out of the definition, moving in part towards the ‘conceptual’ end of the spectrum, is exemplified by the National Council for Curriculum and Assessment (NCCA) in *Literacy in Early Childhood and Primary Education* (NCCA, 2012). This synthesises and helps to map the development of the concept of literacy, stating that:

Definitions of literacy should encompass the cognitive, affective, socio-cultural, cultural-historical, creative and aesthetic dimensions (p. 10).

This document also highlights the need to broaden the conceptualisation of literacy to include multi-literacies and multi-modalities, critical literacy perspectives, socio-cultural perspectives and social practice (p.10). Drawing on a number of international assessment initiatives, it further expands:

.... (literacy) emphasise(s) constructivist interactive processes of reading, where readers actively construct meaning from text. They recognise the importance of literacy in empowering the individual to develop reflection, critique and empathy, leading to a sense of self-efficacy, identity and full participation in society (p. 10).

While the NCCA’s treatment of literacy in the document above is primarily related to conventional language and the ‘reading of text’, the document also reinforces the key concepts of the making and expression of meaning through ‘multimodality’:

Since the use of a range of modalities to make and express meanings (multimodality) is seen as a key aspect of early learning, a definition of literacy for young children must be one that encompasses the various modes of representation, including non-linguistic ones (p. 41).

The inclusion of “multimodalities... including non-linguistic ones”, extends the concept of literacy to include the GLD context – that is, where there is an inability to read and write in the conventional sense – thus rendering redundant the concept ‘illiterate’. Key elements of emergent conceptual understanding of ‘literacy’, therefore, can be summarised as the making and representation of meaning through multimodalities, including non-linguistic ones.

Modalities, in turn, can be functional or conceptual, encompassing concepts such as Media Literacy, Visual Literacy, Information Literacy, Cultural Literacy, Critical Literacy and so on, along with the process of helping to develop identity, participation and self-efficacy. Visual literacy, for example, deals with the interpretation and comprehension of visual images in the meaning-making process, and of expression through the visual. Critical Literacy deals with the construction of understanding and meaning, and the control and negotiation of involvement in social context and relationships. Within this understanding, ‘texts’ can be taken to mean “any form of symbolic expression used in the communication of meaning” (Hobbs, 2006:19). In the case of GLD at the Moderate, Severe and Profound levels, such ‘symbolic expression’ in both the development and expression of meaning has an added significance, with ICTs having a clear role.

### Digital Literacy

The emergence of ICT and digital media has, in turned, helped in the process of challenging and expanding the concept of literacy and its redefinition, leading to the genre of ‘digital literacies’ (Dobson and Willinsky, 2009). However, as a relatively new concept its definition and explanation is contested (Stepic, 2013:369) and there seems to be a lack of a clear understanding of its meaning in Irish educational parlance.

However, similar to the concept of literacy itself, there is a spectrum of understandings and definitions of its meaning in many contexts. Three early phases of the development of its meaning have been described. The first, from the 1960s to the 1980s, was the ‘Mastery Phase’ which was dominated by professionals in the area of programming. This was followed through the 1990s by an ‘Application Phase’, with the development of the application of graphic user interfaces and use of ICTs in education and other areas. Beyond that, the third

phase is described as the ‘Reflective Phase’, with a focus on digital inclusion, more natural interfaces and critical skills (Martin, 2003).

Similar to the understanding of literacy, many definitions of digital literacy are ‘operational definitions’, such as technical or functional skills and as standards-based approaches which harness ICT to support conventional concepts and ‘operational definitions’ of literacy (Williams, 2006). An example is *UNESCO’s ICT Competency Framework for Teachers* (Unesco, 2011).

Further understandings of digital literacy move towards the more conceptual – those which go beyond the “restrictive competencies list” (Bawden, 2008:18). The origins of the more conceptual genre is generally accredited to Paul Gilster from the publication of *Digital Literacy in 1997* (Gilster, 1997). Though lacking a clear conceptual representation or structured framework to explain the concept (Bawden 2008), this work began a discussion of the topic and its further conceptual exploration. Gilster, one of those involved in interrogating the concept of literacy in a digital age, spoke of digital literacy as the ability to understand, evaluate and integrate information in multiple formats (Gilster, 1998:1-2).

Further numerous definitions have emerged, which attempt to bridge the operational and more conceptual understandings, along with the general expectations of education in societies and economies. The State of California (2010), for example, said that in order to “go beyond the technical operations of a computer or other technology device”, digital literacy could be defined as:

...a lifelong learning process of capacity building for using digital technology, communications tools, and/or networks in creating, accessing, analyzing, managing, integrating, evaluating, and communicating information in order to function in a knowledge-based economy and society (p.3)

As the concept developed there was a realisation that, vis-à-vis literacy, digital media was something *new* – not just a support or add-on for conventional understandings of literacy. For example, the New South Wales Department of Education and Training wrote that “a definition from the past cannot accommodate *new ways of meaning-making*” (author’s emphasis), and articulated some of the expanding concepts as follows:

As new technologies for information, communication and collaboration continually appear, new literacies emerge ... As societal expectations for literacy change, and as the demands on literate functions in a society change, so too must definitions of literacy change to reflect this

moving target ... no single theoretical perspective has yet to explain the full range of the changes to literacy resulting from the digital revolution (NSW, 2010, p. 4).

Not only was the concept of digital literacy shaped by established concepts of literacy, but the ‘digital revolution’ began to re-shape concepts of literacy, leading to the ideas of ‘new literacies’ and ‘multi-literacies’:

...a deeper look shows that literacy is much more than isolated skills, and that it extends beyond reading and writing as usually conceived. Literacy implies the capacity to communicate meaning – from speaker to listener, from writer to reader, from creator to viewer. Literacy is best understood through the concept of participation. Literacy enables participation, and new technologies give rise to new forms of participation – hence, new literacies (Bruce and Casey, 2012:197).

Thus, as the conceptualisation of digital literacy develops, the elements of ‘construction of meaning’ and ‘expression of meaning’ begin to take centre stage, along with the concept of ‘multimodalities’ and their ability to facilitate new meaning and new expression. For example, the *Literacy in Early Childhood and Primary Education* research report defines digital literacy as:

... the skills, knowledge and understanding required to analyse, produce and make meaning with multimodal texts that are disseminated through electronic media (Kennedy et al., 2012: 64).

Notwithstanding the myriad of interpretations and definitions, some consensus has emerged on the more conceptual understandings of digital literacy. The following quotation summarises this consensus, and throws out the challenge which these new developments and understandings pose to those involved in teacher professional development:

Fortunately, the emerging consensus among these different perspectives is obvious and considerable: all of the proponents reflect an appreciation that visual, electronic, and digital media are reshaping the knowledge, skills and competencies required for full participation in contemporary society, and all view these abilities as fundamentally tied to the intellectual and social practices known as literacy. Multi-literacies’ proponents recognize that the acquisition and development of these competencies will require changes to the ... learning environment, including significant changes in teacher pre-service and in-service education, design of learning experiences, access to tools, resources and material, and techniques of classroom management (Hobbs, 2006: 200).

Definitions of digital literacy will, therefore, fall into the two distinct camps of conceptual and “standardized operational” (Lankshear and Knobel, 2006:3), or lie somewhere between.

However, both concepts are important in terms of developing an understanding of digital literacy for students with learning disabilities. In other words, ideas and approaches need to be framed for learning and understanding, but also in terms of the technical requirements and proficiencies of the users.

The demands on user proficiency have been greatly reduced by the iPad and new 'tablet' technologies in general, and have given added impetus and opportunity in relation to digital literacies given their ability to simplify the integration of multi-modalities, including images, sounds, text and tactile use.

### **Implications of Digital Literacy vis-à-vis General Learning Disability, and 'Communication and Language'**

How are the concepts of literacy and digital literacy, discussed above, particularly relevant to the learning and teaching of students with General Learning Disability? Especially, in what way are they relevant to the Moderate and to the Severe and Profound Range where conventional literacy will be more limited or absent?

The NCCA's *Communication and Language Guidelines for Teachers of Students with Moderate General Learning Disabilities* (NCCA, 2009b), and the equivalent publication for Severe and Profound (NCCA, 2009c), can be drawn on in order to overview the relevance of literacy and digital literacy to this range of SEN condition. In relation to the 'reading' aspect of literacy, the *Guidelines* state that 'reading' for these students is far broader than the interpretation of text and that some students may not learn to interpret text at all. The focus for these should be on enabling them to make sense of and derive pleasure from all types of visual and tactile representations (NCCA, 2009b and 2009c).

In such cases, the *Guidelines* adds that 'functional reading' will involve attending to and discriminating between objects, pictures, symbols, and (perhaps) text. In some instances there is progression to linking people and activities with their symbolic representation. Such activities should emphasise awareness, discrimination, enjoyment, expression, and creativity. The potential of digital media to record, assemble, to help process and communicate is clear. For students with moderate general learning disabilities especially, who tend to restrict themselves to more concrete words because of difficulties with abstract thinking (NCCA, 2009b, p.8), digital media offer avenues for more abstraction, leading to more developed

meaning from the development of symbolic understanding. Clearly enmeshed within this are the concepts of ‘language’ and ‘communication’:

The term ‘language’ generally implies verbal communication, oral and written...The term ‘communication’ embraces verbal and non-verbal methods of receiving and giving information, essential when catering for students for whom verbal communication may not be an option. Communication may, therefore, take the form of listening and responding through speech or listening and responding using an augmentative communication... (NCCA, 2009b, p.3).

This, again, brings in the concept of multimodality as key to conceptualising digital literacy. Street and Lefstein (2007:235) recognise how literacy operates within “broader semiotic systems” such as “visual signs, notation systems, colour, layout and kinaesthetic” and therefore serves to broaden traditional perspectives on literacy as exclusively language-based. Such broadening of the literacy definition leads on to notions of multi-literacies rather than a singular concept of literacy. This is extremely important in terms of how we frame digital literacy, particularly with regard to how it might be deployed in relation to the learning of students with learning disabilities.

Regarding the Irish policy context – discussed in more depth below – this was further teased out somewhat in the NCCA’s submission (NCCA, 2011) on the draft national literacy and numeracy strategy, which defined literacy in terms of “capabilities in the first language of the school” (DES, 2010: 5):

This monolingual conception of literacy is at odds with international policy and current thinking regarding literacy and language learning ... Further, a monolingual conception of literacy is somewhat at variance with practice in schools in Ireland ... current understanding of language education and language policy takes a plurilingual approach, referring to the full linguistic repertoire of an individual to which all knowledge and experience of language contributes...(NCCA, 2011: 9-10).

With regard to the role of ICT in that plan, the NCCA drew attention to the ‘transformative’ potential of ICTs and commented:

It is unclear if the definition of literacy in the Draft Plan concerns how ICT can support the development of a traditional literacy or if, on the other hand, it concerns how ICT transforms our fundamental understanding of literacy. For example, in the transformative sense, an expanded definition of literacy might include a learner expressing meaning through ICT... (NCCA, 2011:11).

Interestingly, and tied in with the concept of ‘critical literacy’ mentioned above as a means through which individuals manage, control and negotiate their social environment, the NCCA emphasised the need for students to gain the ability to exert control over their environment and over people and objects within it and, moreover, it further underlined the role of language and communication in this, pointing to the need for ‘intentional and functional’ communication in this regard (NCCA, 2009b:4). Thus, “a world of opportunity for the student” may be opened up through this ability to negotiate and gain control over the environment, to develop competence in communication which allows participation in social interactions with peers and adults, and which help initiate and respond to the communication of others in a widening range of situations about a particular need, desire, person, object or activity (pp. 3-8). Similarly, in relation to the ‘visual literacy’ component of digital and conventional literacies, the NCCA Guidelines draw attention to the need for students to understand the non-verbal and non-text modes of representing and communicating. This thinking recognises and accepts the cultural, social and contextual element of digital literacy, which will be embedded within the lived experiences of students in the school settings as well as in informal interactions at home and in other settings.

It is essential, therefore, that any definition or framework of digital literacy encompasses the developmental nature of students’ modes of participation in their particular context and the digital possibilities in this. It must be recognised that twenty-first century life is infused with digital participation and it is vital that students get the opportunity to engage with that digital world in their learning and interactions with education.

In summary, it is clear that ‘language and communication’ can function in non-verbal and non-text ways through ICT and digital media. These media can clearly enhance the making of meaning and its expression, and they can help to negotiate the social context of the user. They are, in short, all components of more advanced conceptual understandings of ‘literacy’.

### **Irish Education Policy: Literacy, Digital Literacy and General Learning Disability**

While the NCCA’s *Communication and Language Guidelines for Teachers of Students with Moderate General Learning Disabilities* (moderate, and severe and profound) do provide a curricular framework for the ‘communication and language’ element (NCCA, 2009b and 2009c), there appears to be some lack of clarity around issues such as what constitutes

literacy, digital literacy, and acceptable levels of attainment in Irish policy in relation to this level of GLD.

In reverting back to basic definitions and concepts of literacy it must be acknowledged that different demands play a role in policy formation, ranging from national economic priorities to the more abstract, basic aims of education. National economic aims, for instance, will lean towards more operational interpretations while basic educational aspirations may influence a more conceptual definition. For example, it is clear that international PISA comparisons have influenced the national digital and numeracy initiative, while students with SEN are not fully included within such measurements. While not intended as a comprehensive review of policy, these tensions along with a consideration of where students with GLD at this level lie in policy, can be briefly explored through some of submissions made in response to the DES's draft national literacy and numeracy plan (DES, 2010).

The Mary Immaculate College of Education submission (MIC, 2011) was highly critical of the plan, saying that its overwhelming focus was “on ‘attainment’ in relation to ‘targets’ which were influenced by “large scale assessments such as PISA and TIMMS” (p. 2). It added:

It would appear that the Draft National Plan embodies a significant shift away from the principles underpinning the Curriculum and overlooks the human core of education. The document is preoccupied with strategic concerns linked to national economic priorities ... There is no consideration within the document of the quality of children's experiences in schools, the quality of educational relationships, or of the quality of learning environments. While the document is concerned with quality, it is expressed in functional terms ... (p. 3-4).

In addressing special educational needs, Mary Immaculate College observed that: “Most disconcerting of all, the document is silent on provision for children with special educational needs” (p. 16). However, even then, the MIC submission said that “the majority of these children with SEN have needs arising from borderline general learning disability, mild general learning disability, or dyslexia” (p. 16). In other words, even this insightful submission did not consider literacy beyond ‘borderline’ GLD.

The National Council for Special Education also noted in its submission that the draft plan did not explicitly highlight pupils with special educational needs (NCSE, 2011: 2):

Council would like to point out that there are certain children with special educational needs who also experience significant difficulties in acquiring the basic skills in literacy and numeracy and as a consequence fail to achieve adequate levels of literacy and numeracy. This

can include pupils who are deaf/hard of hearing, pupils with dyslexia, pupils with emotional and behavioural difficulties, pupils with general learning disabilities etc. (p. 2).

It further speculated that there were ‘likely’ to be a small number of pupils whose cognitive abilities might leave them outside the commitment contained in the draft plan that “every child leaving our school system is numerate and is able to speak, read, write and spell at a level that enables them to participate fully in education and in Irish life and society” (DES 2010: 9).

Council also acknowledges that there are likely to be a small number of children who will not achieve mastery in literacy and numeracy to the level necessary to function independently in our society. Teachers must be equipped with the necessary skills and knowledge to assist these children to communicate to the best of their ability using all the available materials, methodologies and technologies (NCSE, 2011: 3-4).

Of note in this, in relation to literacy at this level, is the somewhat limited ambition ‘to assist these children to communicate to the best of their ability’.

In relation to the outcome of children with special educational needs, the NCSE did point out that standardised tests such as PISA many not “...be best suited to assessing progress among these learners” and that “the PISA results do not generally include children with special educational needs” (p. 5). In comparison, and illustrating the conflicting tensions in policy development, IBEC welcomed “... the Draft Plan’s emphasis on collecting national data on student achievement using standardised tests. Too much education policy draws on the shorthand of commentary around school improvement” (IBEC: 11).

The final plan – *Literacy and Numeracy for Learning and Life: The National Strategy for Improving Literacy and Numeracy among Children and Young People* (DES, 2011) – moved somewhat towards a more expansive and conceptual definition of both literacy and digital literacy:

Traditionally we have thought about literacy as the skills of reading and writing; but today our understanding of literacy encompasses much more than that. Literacy includes the capacity to read, understand and critically appreciate various forms of communication including spoken language, printed text, broadcast media, and digital media. Throughout this document, when we refer to “literacy” we mean this broader understanding of the skill, including speaking and listening, as well as communication using not only traditional writing and print but also digital media (p. 8).

This definition is general and inclusive in nature and serves to emphasise the fluid and developmental element of any definition of literacy. The references to “digital media” serve to include the digital world in the definition. However, more specific reference is avoided and it is not clear what ‘digital literacy’ actually means in policy. This is further evidence of the rapid and diverse nature of developments in the digital world which is inherent in contemporary definitions and practices of literacy development.

Nevertheless, there are indications that contemporary policy is recognising the important role of digital literacy in the learning lives of our students. For instance, *A Framework for Junior Cycle* (DES, 2012) includes the following as a core statement of learning: “uses technology and digital media tools to learn, communicate, work and think collaboratively and creatively in a responsible and ethical manner” (p. 6). As a development of this in 2013, the NCCA published *Digital Media Literacy: Draft specification for Junior Cycle Short Course*. The distinction between digital literacy and digital *media* literacy is unclear in this, and a definition is not given – the concept is introduced by a rationale and an aim for the course, with the aim given as follows:

This course aims to develop students’ ability to use digital technology, communication tools, and the internet creatively, innovatively and safely to support their learning and participate effectively in their communities (p. 4).

However, the detail of the document does point towards the more complex conceptual understanding of *digital (media) literacies*.

Therefore, there is evidence throughout Irish education policy that digital literacies are becoming more recognised in relation to learning for all students, at all levels of engagement with the various curricula. The development of digital literacies as an element of school learning seems to be organic and developmental and, in many cases, schools develop practices themselves rather than depending on external direction. In this context then, it is vital that the teacher becomes equipped with the skills that will allow the development of digital literacies amongst the student cohort.

With this in mind, the following section outlines a *thinking and planning tool* – referred to as a ‘Digital Literacy Framework’ – developed by SESS to help frame digital literacies in the context of curricular targets, instructional planning and student learning, with a particular focus on students with general learning disabilities beyond the conventional literacy range.

## **Digital Literacy Framework**

*[A Framework of Competencies for Teachers to Support the Achievement of Curricular Targets through the use of Digital Literacy for Students with GLD]*

This section describes a Digital Literacy Framework of competencies developed by SESS<sup>1</sup> which, based on the above explorations, was intended to help teachers structure the process of learning and teaching literacy so that students at the moderate and severe and profound levels of GLD can achieve curricular targets with the aid of, and through, digital literacies. Within this context and for the purposes of this initiative, digital literacy was defined as ‘The creation, communication and interpretation of meaning through multimodal digital formats, leading to fuller participation’.

At the outset it must be stated that there is no perfect or ideal framework. The discussions above summarise some large variations in the broad interpretation of the ever-developing concept of literacy and digital literacies, and this is further complicated by the application of these interpretations to the range of students with GLD considered here. In addition, students with general learning disabilities, like any other students, come with various strengths and weaknesses in their educational access toolkit. However, increasing ability in digital literacies would strengthen this toolkit and would also add to teachers’ repertoire of strategies.

Similarly, experimentation and increased proficiency with the tools of digital literacy will enhance student performance. Students may have greater levels of participation, access, engagement and benefit in education environments through increasing their levels of digital literacy and through the deployment of a wider array of digital learning tools. The supports to learning and tools for learning that are afforded by the digital ecosystem should, therefore, be considered as constructive ameliorants to expand the possibilities of the curriculum for students with general learning disabilities.

Therefore, this framework is proposed at one point in time of a shifting landscape. Similarly, all approaches should be guided by individual teacher experiences. Furthermore, any suggested structures and approaches will, inevitably, be reinterpreted and reshaped in practice by teachers’ professional beliefs and individual styles of practice:

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<sup>1</sup> Other SESS personnel involved in the development of the Framework included Mary Carpenter, Kevin Cahill, Sarah Feeney, Pauline Morley, Muireann Sadlier

The most productive way to support digital literacy is unlikely to come from empirical results alone, or from theoretical analysis removed from practice. Instead, as in the best sense of inquiry, it needs to grow out of reflective action – an experimental way of knowing that attends to what students and teachers actually do, but seeks to understand that in terms of deeper conceptions of learning (Bruce and Casey, 2012, p. 204).

Therefore the competencies framework was envisaged as a thinking and framing tool to assist teachers in terms of individualised planning and the meeting of curricular targets as laid out in the curriculum and also, along with broader educational aims, to help them come to terms with the challenges and expectations arising from the new technologies.

In devising the framework, there was a range of frameworks of ‘digital competencies’ from which to draw, many of these relating to functional and technical sets of basic computer skills – that is, operational-orientated frameworks. A level of such ‘functional competencies’ is clearly necessary in order to utilise ICT and so the Qualifications and Curriculum Authority (QCA), for example, produced *Functional Skills Standards* in 2007. Other frameworks can be more conceptual, based on hierarchies or stages of learning. For example, NCCA produced *ICT Framework: A structured approach to ICT in Curriculum and Assessment* (NCCA, 2007), which is more conceptual and which is described as “an enabling framework”, “a structured approach to using ICT in curriculum and assessment” that “provides a guide to teachers for embedding ICT in curriculum and assessment...” (p. 5 ). This approach included a “Framework of Learning Outcomes”, each with suggested ‘learning outcomes’ and ‘learning opportunities’ that had five components.<sup>2</sup>

The European Union produced a conceptual digital literacy model for ‘society’ (EU, 2004). In terms of whole-school adoption of digital literacy, it provided three useful competencies which, it said, were necessary for digital literacy to be effective:

- a) be understood by all individuals in the society
- b) allow for full participation in the benefits and
- c) develop an institution’s capacities to adopt digital literacy.

The NCCA’s *Communication and Language Guidelines for Teachers of Students with Moderate General Learning Disabilities* (NCCA, 2009b and 2009c) – for both moderate and severe and profound students – provides a curricular framework for ‘communication and

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<sup>2</sup> Creating, communicating and collaborating; Thinking critically and creatively; Understanding the social and personal impact of ICT; Developing foundational knowledge, skills and concepts.

language'<sup>3</sup> which might be adapted into a digital literacies competencies framework or incorporated into the one now suggested.

The framework proposed here is adapted from *The Basic Elements of ICT Digital Literacy* which claimed that these 'basic elements' were "globally accepted" (State of California, 2010: 5).<sup>4</sup> The same framework appears in UNESCO's policy statement on digital literacy (UNESCO, 2011). There are resonances of Bloom's taxonomy in the language of this framework, and this is important in the sense that it suggests an outward and upward view of the possibilities for learning for students with general learning disabilities. In addition, given the more precise methodologies which need to be applied to the teaching of the students who have general learning difficulties in the range on which this discussion is focused, the framework suggests the need for further and more precision 'sub-elements' to be built into planning and instruction.

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<sup>3</sup> Available through SESSs 'Curriculum Access Tool – General Learning Disability' (CAT-GLD), available at [cat.sess.ie](http://cat.sess.ie).

<sup>4</sup> For example, the 'evaluate' component is replaced here by 'collaborate' here.



## A DIGITAL LITERACY FRAMEWORK FOR GENERAL LEARNIG DISABILITY

(A Framework of Competencies to Support the Achievement of Curricular Targets through the use of Digital Literacy)

<i>Framework Elements</i>	<b>Definitions</b>	<b>Competencies Summary</b>
<b>Access</b>	Knowing about and knowing how to collect and/or retrieve information.	Search, find, and retrieve information in digital environments; have basic functional knowledge of digital artefacts – input and output.
<b>Manage</b>	Applying an existing organizational or classification scheme.	Conduct a rudimentary and preliminary organization of accessed information for retrieval and future application.
<b>Integrate</b>	Interpreting and representing information - summarizing, comparing, and contrasting.	Interpret and represent information by using digital tools to synthesize, summarize, compare, and contrast information.
<b>Collaborate</b>	Using digital spaces for working together in learning, and learning about turn-taking and collaborating.	Collaborate, share, take turns when learning, accessing and using information in digital modes.
<b>Create</b>	Generating information by adapting, applying, designing, inventing, or authoring information.	Adapt, apply, design, or invent information in digital environment(s) to describe, express an opinion, or support a basic viewpoint.
<b>Communicate</b>	Communicating information persuasively to meet the needs of audience(s) using an appropriate medium.	Communicate, adapt, and present information properly in its context (audience, media) in digital environments and for an audience.

### Summary of Framework Elements

#### 1. Access Information

Accessing information is an important functional skill in any digital environment. For students with general learning disabilities, it is particularly important to learn how to get to the information they may need in their digital ecosystem.

#### 2. Manage Information

The digital ecosystem provides a variety of avenues for ease of storage and management of information for students. Digital spaces allow for the creation and retrieval of dynamic learning portfolios where students can store and develop evidence of their skills and knowledge development. The digital management of information and content allows for a very accessible and user-friendly knowledge environment.

### 3. Integrate Information from Different Sources

Digital content and digital tools span a wide spectrum of modes and means. A key component of digital literacy entails the ability to integrate tools and information that may use different modes. For instance, image, audio and visual modes may be combined with traditional text as media of learning, and as modes of expressing learning. The ability to integrate digital content is an important skill and therefore might be considered as a technical proficiency that is an element of digital literacy. The multimodal aspect of digital tools is particularly relevant for students on the non-verbal range.

### 4. Collaborating

Learning together through collaborative strategies is both an objective of learning and a tool to more efficient learning for students. Developing turn-taking and the social skills required for collaboration is important for students with general learning disabilities. Digital tools may also allow for increasing levels of collaborative learning through the deployment of sharing tools, collaborative editing and sharing of evidence of learning.

### 5. Creating New Knowledge

Because digital tools and the digital ecosystem are dependent on user creativity and content creation, they allow students to focus on creating new knowledge through learning as much as they provide access to existing knowledge. Students of all abilities can create new knowledge, or present understandings and representations in new and creative ways.

### 6. Communicating

The speed and manner of communication is altering rapidly in the digital age, along with the development and integration of technologies such as we see, for example, on the iPad. Digital devices in general allow for instantaneous and multifarious modes of communication, integrated with other functionalities. The digitally literate student may engage many modes of communication and expression including, oral, visual, textual languages and signs. The digital world carries the ability to allow for a wider and more meaningful level of communication for many students, particularly those who may not have strengths in the traditional verbal literacy skills area.

This framework of competencies is, therefore, particularly useful if it is considered as a progression – similar to Bloom’s hierarchy (Bloom *et al*, 1956) – in terms of ‘support *for* learning’ and ‘tools *of* learning’ for students with general learning disabilities. In terms of the

concept of digital literacy, these competencies may also be seen on a continuum from operational / functional skills to processes / hierarchies of learning.

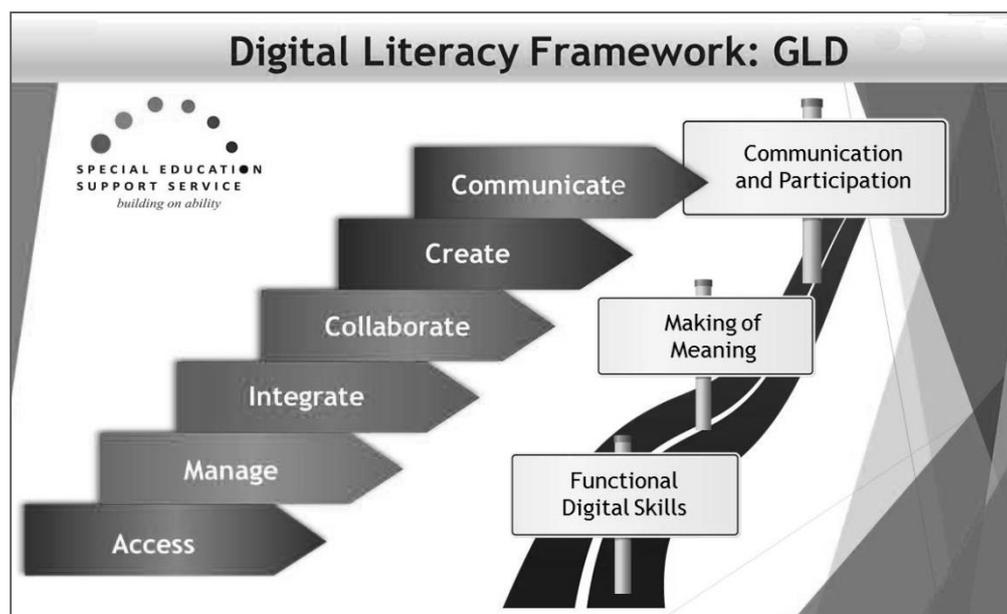
### Supports for Learning:

Methods of accessing and managing information allow students and teachers to open up learning opportunities and to keep and manage learning artefacts. Accessing information is about searching, finding and retrieving information and artifacts of learning. Managing information may involve classifying/categorising and storing information in an organised manner. Such skills are developmental and digital spaces may provide unique opportunities for students with general learning disabilities.

### Tools of Learning:

The digital ecosystem affords opportunities for students with general learning disabilities to integrate information from different sources as well as allowing opportunities for collaborating, communicating and creating. Importantly, digital tools and methods may afford new opportunities for students and teachers to meet the requirements of curricular targets in a more efficient and engaging manner.

Therefore, the Framework Elements, taken in conjunction with the broader and changing concepts of literacy and digital literacy discussed at the outset, may be presented as a hierarchy of progression as follows:



## Framework Sub-Elements

As outlined above, precise methodologies and sequences need to be applied to the teaching of students in this cognitive range and the following are examples of the more precise ‘sub-elements’ which would be built into the framework in terms of planning and instruction.

<b>DIGITAL LITERACY FRAMEWORK SUB-ELEMENTS</b>			
<b><i>Elements</i></b>	<b><i>Sub-Elements</i></b>	<b>Definitions – examples</b>	<b>Competencies – examples</b>
<b>1. Access</b>	Recognise a form of digital media as a communication tool	Showing recognition of a repeatedly presented form of digital media used to enhance communication	Orient towards, show interest in a form of digital media
<b>1. Access</b>	Recognise and show interest in a form of digital media as a communication tool	Showing interest in engaging with a form of digital media used to enhance communication	Orient towards, show and maintain some level of interest in a form of digital communication
<b>2. Manage</b>	Utilise psychomotor skills to actually use a form of digital media effectively in a simple form with or without support (checklist required to assess level of support)	Exhibit skills demonstrating that pupil can apply an existing organisational scheme with support (checklist required to assess level of support)	Touch the screen in an effective manner
<b>2. Manage</b>	Utilise cognitive skills and demonstrate awareness (checklist required to assess level of awareness) of the communicative function of the app (ie matching: cause effect: picture build etc)	Exhibit skills demonstrating that pupil can apply an existing classification scheme with support (checklist required to assess level of support)	Matching shapes – app “Match it Up” (maths)
<b>3. Integrate</b>	Discerning between pieces of information with or without assistance	Making a visible choice with or without assistance	Orienting towards, pointing, selecting or clicking upon one piece of information over another with or without assistance
<b>3. Integrate</b>	Choice-making	Interpret information appropriately	Pupil can signal to communicative partner that s/he has understood pieces of information

## CPD Approach - A New Digital Age?

In addressing SESS’s CPD approach to supporting teachers in relation to this literacy approach, the question arises as to an evidence-base from which a sound approach could be developed. A number of factors may be considered here:

- Firstly, the iPad – the driver of modern ‘tablet technology’ – was only launched in 2010 and had only been in existence for three years at the beginning of this process. Therefore, there could be no substantial and robust evidence base. Nevertheless, anecdotal evidence suggested that, in some cases, the technology was being adopted widely in classrooms and was having a penetration and effectiveness perhaps not achieved by more structured ICT initiatives previously.
- This rather *ad hoc* deployment of new technologies is an example of what has been described as ‘disruptive’ innovative change, with unpredictable ‘events’ generating change rather than it being mandated, linear, planned and supported (Edyburn, 2013: 15-16). The ‘bricoleur’ metaphor is useful here. It is a French expression which loosely translates as ‘handyman’, someone who uses ‘the means at hand’ – whatever tools are available in the toolbox. Bricoleur teachers tend to be collaborative and flexible and set out to realise their goals in a spirit of collaborative venture (O’Sullivan, 2005; Turkle and Papert, 1992).
- Huberman (1989), in his seminal work on teacher professional lifecycle, described the ‘experimentation/activism’ stage of teacher lifecycle where some teachers become comfortable with “pedagogical tinkering” (p. 33). This phenomenon, coinciding with the bricoleur-type teacher described above, is a powerful platform for the practice-based exploitation and testing of ‘disruptive technologies’. Such teacher, associated with SESS, were key resources in developing and testing the approached being developed.
- The phenomenon designated here as ‘The New Digital Age’ refers to a tipping-point and convergence that has been reached whereby ‘digital native’ teachers, comfortable and confident with their specialist pedagogies, and now with significantly improved ‘everyday-technologies’ to add to their toolboxes, are independently and creatively harnessing those technologies into practice without conventional, top-down ‘training’. This may have implications for our approach to CPD in this context.
- The NCCA’s description in *Literacy in Early Childhood and Primary Education* of the ‘classroom learning ecology’ is also useful here. This “...involves the classroom curriculum, teaching pedagogies, the relationship between children and teachers and children and their peers in a social learning environment” (p. 39).

Given this background: the lack of an evidence base; the existence of sound general methodologies; a cohort of teachers who have explored the adoption of the technologies into their practice; the concept of a collaborative learning ecology, SESS's support and CPD approach was intended to support the development of the digital ecosystem into that broader classroom learning ecology. In so doing, the proposed Framework was offered as a 'road-map' or a gateway tool for teachers to conceptualise, plan and manage student learning regarding curricular objectives and digital literacies, and to absorb them into normal routines.

This suggests facilitating the adoption of the digital literacy concept into pre-existing knowledge and methodologies rather than 'delivering' new content and approaches.

Therefore, the support format developed by SESS was envisaged as 'workshop' style, with stated learning outcomes that participants:

- Will gain an overview of the concepts of literacy and digital literacy relevant to this level of GLD
- Will understand the application of digital literacy in achieving particular curricular targets through instructional planning
- Will utilise a Digital Literacy Framework for planning and in teaching
- Will achieve confidence in using ICT for digital literacy (tablet Apps in this case)
- Will receive examples of a set of software suitable for particular tasks / targets (Apps to achieve curricular targets, based on stages of skill acquisition in Digital Literacy Framework)
- Will know how to adopt other applications (Apps) for reaching other types of curricular targets
- Will contribute to collaborative discussion

## **Conclusion**

This initiative arose as a response to the National Digital Strategy, in coincidence with support requests to SESS from teachers and schools on how to exploit the 'new digital age' technologies for the benefit of students' learning. This paper outlines questions raised about some established understandings and paradigms during the development of initiative and some of the possible implications of these.

The digital literacy workshop which arose from this initiative was piloted by SESS in two special schools, and also with a focus-group of teachers who work in this field. Strong satisfaction was expressed with both the Framework and its use as a guide to the implementation of the curriculum.

Therefore, while developments will undoubtedly continue in this area, SESS is satisfied that the Framework provides an initial robust organisational structure for teachers of students with GLD and that it is an effective planning and management tool in supporting the learning and teaching of Digital Literacy skills. These digital skills, by providing a new and different means of learning, teaching and communication, may allow many of these students to cross the “vertical divide” (EU, 2004:36) that prevents their inclusion in society.

Logically, digital literacy and digital culture should be focused and guided by the opportunity they present for expanding and promoting the central position of the human being in our society. In this respect, talking of digital culture will in some way be like discussing the chance to construct a new kind of humanism (EU, 2004:58).

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