**Dixon, N. (2013). Scaffolding Fully Online First Year Computer Literacy Students for Success. *Irish Journal of Academic Practice*, 2(1), Article 5, 1-20.**

This paper reports on experiences from the delivery of a fully online computer literacy module which is provided for first year students of a degree programme. The author challenges the notion that the modern generation of learners are “digital natives” (Prensky, 2001). He argues that, while most first year students are reasonably experienced in the use of computers for internet and social media, this does not necessarily convert to proficiency in “desktop applications”, such as word processing, presentation software and spreadsheets.

The author examines the impact of providing supports to the students to compliment an existing commercial online IT skills module. His study considers the adoption of a scaffolding approach based on Bruner’s theory (which built on Vygotsky’s theory of the Zone of Proximal Development), of building learners skills to a point where they are encouraged to take on the next step of a task (Bruner, 1960). A mixed method approach to the research is taken with a combination of questionnaires (quantitative) and email correspondence, focus groups and interviews (qualitative).

The limitations of the study are apparent in the small numbers of face-to-face interviewees (4) and the authors own conclusion that significant variables in computer literacy exist between school leavers and more mature third level entrants in the student cohort. This indicates that deeper exploration of these differences may well be warranted to further explore the research question. The study is based on established learning theory though which would support the papers conclusions and the author has used both quantitative and qualitative methods in his research.

As the group project I am part of is developing a pre-college e-learning resource, the issue of computer literacy as a barrier to engagement with third level education is particularly relevant. The paper strongly supports the rationale for the development of a resource for pre-college students which improves word processing skills. Many of the author’s conclusions and recommendations point to the limitations of fully online delivery and the importance for learners of supports including face-to-face elements, such as induction and tutorials. This highlights the importance of careful design of e-learning to ensure that engagement and motivation is maintained. Following an established instructional design methodology in our project work, therefore, should help ensure that we develop a quality resource.

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Bruner, J. (1960). *The Process of Education.* Cambridge, Massachusetts: Harvard University Press.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, 9(5).

**Roytek, M. A. (2010). Enhancing instructional design efficiency: Methodologies employed by instructional designers. *British Journal of Educational Technology*, 24(2), 170-80.**

This research paper considers possibilities for improving efficiencies in the instructional design process, based on experience of practitioners from industry. The author raises concerns over a lack of research in this area, particularly in light of the current international economic climate which is focussed on improved productivity. It is argued that research into instructional design (ID) has traditionally focussed on learner efficiencies rather than the design process itself. The author highlights existing concerns that instructional design theory is not grounded in practice (Schwier, Campbell and Kenny, 2004).

The author makes a strong case that the design stage of any ID model is worthy of particular attention as changes during development are costly and time consuming. In the background to the study provided, there is reference to a rapid prototyping (RP) methodology, adopted from computer software manufacturing, which can be applied to ID to reduce the cycle time in design. She also points to an increasing use of computer based ID tools, the importance of having an experienced design team and the reuse of existing learning objects as potential ways of improving efficiency. According to the author, these methodologies and tools, while acknowledged for their potential for improving design efficiency, do not constitute a systematic approach to addressing efficiency.

The study follows a qualitative approach, interviewing 11 instructional design practitioners from two organisations, both from the automotive sector. According to the author, the results identify 47 efficiency methodologies within four categories of design model. These categories include; design models, ID team member roles, ID processes and ID tools.

I found the possibilities for efficiencies in the instructional design process interesting for its relevance to our group project. However, in my opinion, the “efficiency methodologies” identified were more techniques or approaches to instructional design that may be adopted in practice. Some of the methodologies proposed, such as leveraging expertise in teams when appointing roles, seem logical and useful. However, another “methodology” proposed was to skip an evaluation phase, which I would consider highly questionable.

There was no effort made in the study to quantify the success or failure of any of these techniques, something which would have been particularly useful to avoid any accusation of ‘cutting corners’ in the design process. The study is also very limited in its scope, admittedly acknowledged by the author, with only one industry sector represented and eleven respondents.

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Schwier, R.A, Campbell, K. & Kenny, R. (2004). Instructional designers’ observations about identity, communities of practice and change agency. *Australian Journal of Educational Technology*, 20(1), 69-100.

**Vardi. I. (2012). Developing students’ referencing skills: a matter of plagiarism, punishment and morality or of learning to write critically? *Higher Education Research & Development*, 31(6), 921-930.**

This paper considers the potential for addressing issues with students referencing skills through a focus on critical thinking in their writing. The author is of the view that an emphasis on plagiarism and punishment leads to negative connotations for the learner and creates a barrier to the development of their own “authorial identity”. It is the author’s belief that this approach is reinforcing in the learner a need to adhere to convention rather than developing their writing skills. She fears that this is a significant obstacle to the development of students ‘high order’ skills which are fostered when deep critical engagement with material leads learners to evaluate, synthesise and evaluate (Nickerson, 1994; Scriven & Paul, 1996).

The papers conclusions are based on a study where a critical writing approach was taken with first year students within a unit of a faculty in an Australian university. A large body of students (2,500) were taken in the sample, with half from non-English speaking origin. For these students, a strong emphasis was placed on expressing their own voice in their work. Assessment tasks required students to analyse, interpret and evaluate research across a broad range of sources. A deliberately small focus was given to the issue of plagiarism, although students were aware that text matching software was in use to analyse submissions. A quantitative analysis of grades from assignments was undertaken to evaluate student outcomes. The author believes that this analysis demonstrated that an improvement in students referencing skills was achieved, when compared with other studies.

I was interested in this paper as our group project includes a referencing guide for pre-college students. The conclusions of the study support my own belief that a ‘fear factor’ exists for first year students when they are introduced to the concept of referencing. However, I believe that this study is limited in that it did not draw a comparison with grades from a similar body of students within the university who had adopted the traditional approach to academic writing. I would also have concerns that the author is ignoring the issue of learner readiness in her efforts to extol the virtues of a critical writing approach in developing learner skills. Not all first year (or second year) students may be developed enough as critical thinkers to engage successfully with this approach. However, the benefits of providing an accessible, non-threatening guide to referencing for new college entrants are supported in the background provided to the research conducted in this study.

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[**OECD**](http://ictlogy.net/bibliography/reports/contacts.php?idc=108) **(2008).** [**New Millennium Learners. Initial findings on the effects of digital technologies on school-age learners**](http://ictlogy.net/bibliography/reports/projects.php?idp=1627)**. OECD/CERI International Conference “Learning in the 21st Century: Research, Innovation and Policy”. Paris: OECD. Retrieved November 10, 2014 from** [**http://www.oecd.org/site/educeri21st/40554230.pdf**](http://www.oecd.org/site/educeri21st/40554230.pdf)

This paper provides a progress report on a Centre for Educational Research and Innovation (CERI) project entitled “New Millennium Learners” (NML) which examines the effects of digital technologies on school-age learners. The report provides an update on the first phase of the project, which considers the changes experienced by learners. The author is quick to caution on the dangers of assigning such a broad ranging label such as NML to all children and teenagers, acknowledging that factors such as age, gender and socio-economic status have an impact on the effect of digital technologies for learning. The paper examines the contrasts between how young people adopt technologies and how they are used in an educational context. For instance, while it is acknowledged that a high percentage of 15 year olds in the OECD countries frequently use computers at home (OECD, 2003), the vast majority of this time may well be spent on the internet (National Center for Education Statistics, 2004).

The research presented also points to an under-utilisation of computers in school, with 50% of students in the EU not having used computers within a twelve month period in 2007. This is certainly significant as it is the use of computers in a formal school setting where skills such as desktop applications are likely to be learned. The author highlights the lack of broad ranging research into the effects of digital technologies on cognitive skills development. While acknowledging positive impacts on visual spatial skills and non-verbal intelligence, he points to a lack of evidence of a relationship between technology and academic achievement. Research is noted, such as PISA results, indicating a correlation between factors such as access, previous experience, frequency of use and confidence levels and modest improvements in academic attainment (OECD, 2003). This is worrying in light of other assertions in the paper citing the influence of socio-economic disadvantage and the influence of a “family’s cultural capital” on children’s use of technology at home.

Group discussion on our project rationale pointed to concerns that, while most young people increasingly engage with technology through internet, social media and use of devices such as smart phones and tablets, this does not necessarily equate to high computer literacy levels. This paper, and Dixon’s (2013), provides support for the notion that broad ranging assumptions about the generational impact of technologies on learning are misleading. As a group, when developing a persona for the user of our resource, we were inclined to consider someone from a disadvantaged background as a candidate with a need for a technology learning support. This paper highlights that socio-economic circumstances are a significant factor to be considered.

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**Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, 9(5). Retrieved online November 23, 2014 at:** [**http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf**](http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives%2C%20Digital%20Immigrants%20-%20Part1.pdf)

In this opinion piece, the author presents an argument that a significant generational divide exists between those born in the previous two decades and older generations. The two generations are broadly categorised as being either “digital natives”, the young, and “digital immigrants”, the older people who struggle to adapt in the new ‘digital age’. The author points to a detrimental impact of this divide on education. He highlights a key implication in communication as teachers (digital immigrants) speak a different language to their students (digital natives). There are further, and perhaps even more profound, conclusions presented which suggest that students have different brain structures and think and process information differently than their older counterparts.

According to the author, these differences carry serious consequences for learning. As teachers are by default “digital immigrants”, they fundamentally lack understanding of the way their students interact with information and, while they may attempt to update their knowledge of digital technologies, they will never be “native speakers” of this new language. He suggests that characteristics of digital natives include: searching the internet for information as a first port of call; reviewing information onscreen rather than printing hard copies; receiving their information fast and with random access rather than incrementally. He believes that “smart adult immigrants” will accept the change and benefit from learning from their own kids.

The sweeping generalisations made by Prensky in this article are based on an assumption that an entire generation has become proficient in the use of digital technology and an associated ‘new’ language. I was interested in this article for its relevance to our group project where we are considering young people’s abilities to use word processing software. If we were to accept Prensky’s conclusions, we would assume that all young people are already computer literate on the basis of their exposure to technology. However, I believe that he is ignoring the possibility of variables in young people’s use of technology based on gender differences or socio-economic factors (OECD, 2008). He also fails to consider the usage patterns of digital technology among young people (Dixon, 2013). While, in effect, insisting that teaching should be tailored specifically for these new “digital natives”, he is effectively ignoring established theories on learning styles which encourage the use of multiple modalities in delivery.

The lesson, for our group project work, is to avoid broad assumptions about our target learners. Rather we should focus on having a clear learner profile established and develop our resource to cater for learner needs.

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[OECD](http://ictlogy.net/bibliography/reports/contacts.php?idc=108) (2008). [New Millennium Learners. Initial findings on the effects of digital technologies on school-age learners](http://ictlogy.net/bibliography/reports/projects.php?idp=1627). OECD/CERI International Conference “Learning in the 21st Century: Research, Innovation and Policy”. Paris: OECD. Retrieved November 10, 2014 from <http://www.oecd.org/site/educeri21st/40554230.pdf>

**Helsper, E. J. & Eynon, R. (2010). Digital natives: where is the evidence? *British Educational Research Journal*, 36(3), 503-520.**

This research paper challenges the notion that a generation of “digital natives” has led to an unbridgeable gap between educators and young students (Prensky, 2001). Specifically, the authors question the idea that age is the sole factor determining digital native status. They examine typical digital activities that are associated with “digital nativeness” and then consider the types of people likely to engage in these. The authors explore the impact of three different factors affecting whether someone qualifies as a digital native:

1. Age – the affect of growing up in the digital age surrounded by technology
2. Experience – the duration that someone has been exposed to internet use
3. Breadth of use – the extent to which internet use has been integrated into someone’s daily life, regardless of their age or experience

The study adopts a quantitative methodology employing a nationally representative survey with 2,350 respondents. The survey of internet use and non-use looked at access, usage patterns and impacts on everyday life. Consideration was given to the “media-richness” of a household, that is, the number of information and communication technologies present. Twelve categories of internet use were identified: fact checking, training, current affairs and interests, travel, finance, shopping, entertainment, social networking, diary functions, person to person networking, e-government and civic participation. It was acknowledged that, while all of these activities may indicate some level of learning, the three most related to education are fact checking, training and current affairs.

The authors conclude that age is not the sole determining factor affecting interaction with digital technology and the internet. Other variables identified include gender, education, experience and breadth of use. Therefore, it is the level of immersion in digital technologies that in effect determines if someone is a digital native. This means that a young person who has a superficial exposure to internet, for activities such as social networking and shopping, may be less of a digital native than someone in their mid-thirties with an office job that involves regular internet use for research and training. In terms of age as a factor, the study points to a generational divide after the age of 55. This finding would challenge the notion that teachers are incapable of speaking the same ‘digital language’ as their students.

The study does not explore the issues of access to technology, social disadvantage and the importance of a family’s “cultural capital” in affecting usage of technology for educational activities (OECD, 2008). However, the authors do acknowledge this to some extent in their conclusions and recommend that qualitative research be undertaken to explore family learning and what activities people actually engage in online.

Our group project is based on the premise that not all school leavers are necessarily computer literate and in a good position to seamlessly integrate into college life. The conclusions of this study, Nixon’s (2013) and the OECD report (2008) would support this and suggest that there are a number of factors such as gender, educational levels and access to technologies which are creating variables in the computer literacy levels of young people.

**References:**

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