'Digital Natives' Require Basic Digital Literacy Skills

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Abstract
This paper discusses a Digital Academic Literacy (DAL) Programme at the University of the Western Cape (UWC). It highlights the programme's response to and alignment with emerging South African Higher Education (HE) national policy imperatives and discourses which include, the effective integration of ICTs for teaching-and-learning; and the need to increase and continue large-scale targeted work. This specific student development programme is deliberated within a paradoxical context, where on the one hand there are claims by Marc Prensky that the Digital Natives use of ICTs are significantly increased from their predecessors; and on the other hand, many of these Digital Natives still require basic digital literacy training and support.

The study highlights how gaining the necessary ICT support, better equips students to cope academically while, attaining skills which enhance employability. The researchers discuss the exponential growth of the DAL Programme, catering to first year students across departments, as well as the need for further expansion to accommodate all students who lack the necessary digital literacy skills to succeed at university.

A mixed-method approach is adopted, using both quantitative and qualitative evidence. Data was retrieved from the intranet of the Centre for Innovative Education and Communication Technologies (CIECT) as well as, via an internet-based online survey. Other data includes student assessment results after engagement in the DAL Programme as well as, contributions by field experts. Moreover, the researchers highlight the importance of critical change management processes to ensure the sustainability and quality of the programme.

Keywords: Marc Prensky, South African Higher Education, eLearning, Student Development.

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1. Introduction

The paper explores Marc Prensky's *Digital Natives* theory within a South African context and proves that the need for support programmes which educate incoming students on basic digital literacy skills is still needed at tertiary level.

Below the Digital Academic Literacy (DAL) Programme's history is introduced.

1.1 DAL Programme History

A university wide task group formed in 1999 to investigate the delivery of computer literacy skills to novice users of digital media at The University of the Western Cape (UWC). This process resulted in the creation of the DAL and its formal acceptance as a credit bearing course, offered to all faculties at UWC where it is weighted up to 20% in a number of foundation courses. The DAL runs effectively as a result of staff who are dedicated to serving students and aiding them to succeed academically. The 2015 DAL team consists of one coordinator, six facilitators (three are full-time) and 31 tutors.

Since 2005, members of faculty have contacted the Centre for Innovative Education and Communication Technologies (CIECT) about implementing the DAL Programme in their various disciplines. Table 1 depicts the number of students trained in the DAL Programme over the last ten years. The upward trend since 2012 is as a result of tapered programmes to meet individual faculty needs.

Digital Academic Literacy Programme											
Y E A R	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Economic and Management Sciences	116	731	895	750	2136	1719	1777	1414	1791	2031	1983
Arts	187	374	121	497	587	355	398	400	434	433	386
Community and Health Sciences	781	413	303	375	530	475	516	452	406	403	384
Dentistry	31	33	26	28	27	126	135	106	152	121	156
Natural Sciences	97	116	0	0	0	0	0	0	0	123	109
Law	615	473	423	503	488	731	593	0	0	613	624
Education	0	0	0	0	0	620	815	386	304	401	349
TOTAL TRAINED	**1827**	**2140**	**1768**	**2153**	**3768**	**4026**	**4234**	**2758**	**3106**	**4125**	**3991**

Table 1: Number of students trained in the DAL Programme (2005-2015).

The DAL team works closely with all faculties to ensure that students have a good first experience with eLearning at UWC. This consultative approach assists in encouraging further eLearning possibilities for students and lecturers, once students are familiar with a range of basic eTools and resources. The DAL course content is an attempt to level the playing fields for underprepared students who have had little or no access to digital media for academic purposes. The customisation offered in the DAL Programme also assists in the development of graduate attributes within specific disciplines.

Currently UWC has students enrolled who have not used any form of digital media in teaching-and-learning environments and whom possess little to no computer skills. Thus, while these students may fall into the Digital Native category, this term is problematic in a UWC context.

1.2 Digital Natives

The term Digital Natives originated with Marc Prensky, who argued that the new generation of students entering universities were profoundly different to previous groups (Kennedy, Judd, Churchward, Gray, & Krause, 2008). The term is associated with students who were born after the year 1980 (Margaryan, Littlejohn, & Vojt, 2011) and were exposed to technology, computers and the internet from a young age (Bennett, Maton, & Kervin, 2008). Prensky believed that the brains of Digital Natives were physically different as a result of the home environment (Kennedy et al., 2008). Prensky (2001), quotes Dr. Bruce D. Berry as saying, "Different kinds of experiences lead to different brain structures" but notes that whether or not Digital Natives have physically different brains, their "thinking patterns have changed" (p.2).

Access to Information and Communication Technologies (ICTs) does not necessarily equate to understanding or the ability to apply ICT skills to academics. As Czerniewicz and Brown (2005) note, access does not directly relate to increased "value for education" (p.1). Especially within an African context, one cannot adopt a Western theory without adapting it. As universities adapt to cater to a new digital generation, support is crucial as many students and staff are not comfortable with ICTs. Too often there is an assumption that introducing ICTs results in improvements (Shaikh, 2009) without considering other factors.

The following section presents a brief review of the literature.

2. Literature Review

2.1 Growth of ICTs in Education

Worldwide, Higher Education (HE) is undergoing a major shift due to the increase in ICTs (Czerniewicz & Brown, 2009) which cannot be overlooked as they have become a "driving force behind the quality of education" (Shaikh, 2009, p.64). Higher Education Institutions (HEIs) in Africa are continuously striving to improve and transform the use of ICTs in various areas including teaching-and-learning, communication and research (Adam, 2003). Despite scarce resources and other challenges, universities spend more on ICTs than they previously did (Czerniewicz & Brown, 2005).

In South African HE, the adoption of ICTs and effective eLearning practices have become crucial policy goals in order to increase the participation and throughput of students from previously marginalised groups, and equip them with skills for social transformation (Jaffer, Ng'ambi, & Czerniewicz, 2007). These policy goals, as highlighted in the White Paper (2013), emphasize government's call to implement ICTs into HE programs to "[i]mprov[e] student access" (p.49). "[S]uccess and throughput rates [are] a very serious challenge for the university sector and must

become a priority focus for national policy and for the institutions themselves." (White Paper, 2013, p.31)

2.2 University of the Western Cape

With an awareness of UWC's mission and the information economy's demands, an eLearning support unit (now called CIECT) was founded in 2005 to promote the adoption of innovative technologies and support the UWC community by developing skills and ePedagogy to enhance teaching-and-learning practices. This is in alignment with UWC's IOP which stipulates under Goal 2, Strategy 1 that the university will "[i]mprove and professionalise teaching and learning across the institution" and aim for "[g]reater infusion of technology into the curriculum" (p.13).

The following section discusses the Methodology.

3. Methodology

This study was reviewed by the UWC Faculty Board Research Ethics Committees and then by the UWC Senate Research Committee where it was approved (Registration number 15/4/3). The researchers identified no conflict of interest.

A mixed-methods approach was adopted to eliminate the bias of one data source (Denzin in Johnson, Onwuegbuzie, & Turner, 2007) and through sequential triangulation, used existing data to design the second phase of data collection (Johnson et al., 2007). Both quantitative and qualitative data were retrieved from CIECT's intranet, Integrated Data Management and Processing System (IDMPS); an internet-based ICTs Access Survey; student assessment results after engagement in the DAL Programme; and contributions by the DAL facilitators.

The online survey was designed once analysis of existing data from the DAL database was underway, in order to strengthen the study. Feedback from experts in the field also proved vital in designing the study as they held a wealth of knowledge regarding the programme which, assisted in substantiating and guiding the research direction.

The following sections provide an overview of the target population, data collection techniques, and potential limitations of the study.

3.1 Sample

The sample consisted of the 2734 students participating in the DAL Programme at UWC during the first semester of 2015. Tables 2 and 3 indicate student demographic data.

Age Breakdown of DAL Students	
Age Groups:	# of Students:
17-30	2287
30+	74
Did not indicate	372
Incorrect entry	1

Table 2: Age breakdown of 2734 students in the 2015 DAL Programme (from CIECT's IDMPS).

Gender Breakdown of DAL Students	
Gender:	# of Students:
Males	1193
Females	1510
Did not indicate	31

Table 3: Gender breakdown of 2734 students in the 2015 DAL Programme (from CIECT's IDMPS).

It should be noted that the data retrieved from the IDMPS represents the larger group of respondents. Following, the discussion reflects specifically on the data drawn from the ICTs Access Survey.

Within the larger sample group, a smaller sample group consisting of 1414 students completed the ICTs Access Survey (using Google Forms). The majority of these students were first years under the age of 21 (n=1228, 86.8%). Most were full-time students (n=1379, 97.5%), and 2.5% were part-time students. Survey respondents represented six out of seven faculties. Most respondents were from the Economic and Management Sciences Faculty (n=741, 52.4%), followed by Education (n=295, 20.9%), Arts (n=227, 16.1%), Community and Health Sciences (n=114, 8.1%), Dentistry (n=34, 2.4%) and Law (n=3, 0.2%).

The following section presents information gathered via data collection techniques.

3.2 Data Collection

The data collection techniques consisted of three parts namely, *Observations by Subject Matter Experts (SMEs)*, extracting the relevant data needed from the *IDMPS* and, conducting the *ICTs Access Survey*.

The SMEs set-up and manage the IDMPS from which most of the quantitative data were retrieved. Through analysis of the data, researchers identified a gap related to student ICTs access which led to the design and distribution of the ICTs Access Survey.

Each of these data collection techniques is discussed in more depth below.

3.2.1 Observations by Subject Matter Experts

The SMEs referred to in this context are the DAL facilitators who train and support students within the DAL Programme. Their other roles include meeting with faculty representatives to structure tailored programmes according to student needs, monitoring face-to-face training interventions, providing consultations, managing student assessments, administrative activities and, managing the IDMPS. Their intensive involvement in all aspects of the DAL Programme means their observations and input have high validity and authenticity aligned to Neuman's (2003) statement of

"giving a fair, honest, and balanced account of social life from the viewpoint of someone who lives it every day" (p. 185).

3.2.2 Integrated Data Management and Processing System

Data related to first years engaged in the DAL Programme is stored in CIECT's intranet, the IDMPS. It is a platform which records information regarding the initial understanding and ability of students according to their reflections in a questionnaire completed upon entering the programme. Additionally, it monitors their progress and final results upon completion of the course. Access to the IDMPS is limited to approved institutional desktops that have the client installed. These clients connect to the password-protected server through a secure network and access is restricted by multiple password layers.

3.2.3 ICTs Access Survey

The ICTs Access Survey was designed to gain additional data needed for the study, after reflecting on data retrieved from the IDMPS. The online survey was conducted using a single-page Google Form which was embedded into the institutional Learning Management System (LMS), namely iKamva/Sakai. Students accessed the survey via the DAL course page and it was accompanied by a digital consent form which had to be acknowledged before survey results would be included in the study. All respondents remained anonymous and all questions were closed-ended.

This surveying method was selected for four reasons. Firstly, researchers aimed to limit the impact participation would have on class time. Second, it was convenient and accessible as the classes are situated in a computer laboratory environment. Third, it was the most cost-effective technique for such a large target population (2858). Finally, self-administered questionnaires are seen as "very effective, and response rates may be high for a target population" (Neuman, 2003, p.289).

The survey underwent testing by the CIECT team prior to it going live, to ensure completion within a short time-frame. After the testing phases, the survey was live from 9-23 March 2015.

Students were motivated by the DAL facilitators to engage voluntarily in the survey, in order to create awareness regarding its content and purpose, which was to determine access to ICTs within their home and community environments.

Due to the predominantly qualitative nature of the study, a nonprobability, purposive sampling method was used, to conduct an in-depth investigation of the Digital Natives at UWC. This produced a sampling ratio of 49.5% (1414 out of 2858) which limits the sampling error due to the high participation rate.

It was important that the researchers reflected on the limitations of the data collection techniques.

3.3 Limitations

A possible limitation was the validity of student reflections regarding their own abilities related to ICT competencies. During the analysis of this entry questionnaire (placed on CIECT's intranet, IDMPS), inconsistencies arose as a limited number of responses were not aligned. An example being that 253 students indicated they could send and retrieve emails, but a higher number (278) indicated they could add an attachment to an email. One would assume that if you could add an attachment to an email, you would be familiar with simpler email commands such as send and retrieve. These inconsistencies could indicate that some students did not answer honestly or simply "clicked through" questions resulting in invalid responses. This is referred to as a "response bias" – where participants agree or respond similarly to a large number of questions as a result of "laziness or a psychological pre-disposition" (Neuman, 2003, p.197).

Another possible limitation related to the ICTs Access Survey, was participants who fell outside the target group. This is unlikely as the reason for data collection was explained to participants however, due to limited access control and anonymous responses; the link could have been forwarded to people outside the target group (Stanton & Rogelberg, 2001). To ensure that the majority of responses were from within the target population, researchers compared the time-stamps of survey submissions to the DAL class times and found that the majority of responses (n=1300, 91.42%) were submitted during class and in the ten minutes after class (n=54, 3.79%). This proves that it is likely most responses were submitted by the target population (DAL students) under supervision. The researchers also acknowledge the possibility of participants submitting multiple entries, either by accident or purposefully. Due to many students utilising the same computers on campus, IP address filtering was not an option to prevent multiple entries.

Another possible limitation is that of researcher bias, as the DAL Coordinator is a researcher in the study and played a crucial role in drafting questions for the online survey as well as in data analysis. However, through triangulation and multiple researchers working collaboratively, the probability of researcher bias is low.

In the following section the findings are discussed.

4. Research Findings and Discussion

The four sections below will reflect on: (i) Observations by the DAL facilitators regarding the phenomenon of the Digital Natives and its relevance at UWC, (ii) findings from the IDMPS regarding the initial abilities of first years entering the DAL Programme, (iii) findings from the ICTs Access Survey, and (iv) reflections on the assessment and moderation process in the DAL Programme.

4.1 Observations by Subject Matter Experts

The DAL facilitators serve the UWC community through their numerous and intensive roles which they balance within the natural environment and the impact they have on students, which make their observations valuable to the study.

In asking the facilitators whether they agreed with the concept of the Digital Native, within a UWC context, the general response was negative:

"A person born post-1980 might be brought up during the "digital age" but this does not mean they are familiar with computers or the internet."

Another elaborated:

"[A]ssumption[s] that all students today are technologically savvy is not true at UWC or most of Africa for that matter, where there are very few who are tech savvy. […] Yes there are those who at times feel bored because they already know but, those are the lucky ones who grew up in well off families and went to 'so called' better schools. The fact that students are so familiar with social networks […] does not mean they can write an academic paper or fulfill the academic requirements."

The facilitators further commented on the impact of the DAL programme:

"The DAL Programme has a positive impact on students' academic careers, as they are able to complete assignments and other tasks that require the use of the packages or tools we have taught them. A great deal of students still have minimal exposure to computers when finishing high school, therefore DAL would be an integral part of making their academic career a success."

And:
"[Students] complain about the short duration of the programme and wish it were the entire year. Some even feel that it should be a module on its own and not form part of another module e.g. 10-15%. That is an indication that the programme is making a huge difference in their academic life and beyond."

These observations prove that the DAL Programme is still needed and we examine this more closely in the following section.

4.2 Integrated Data Management and Processing System

Tables 4-7 provide a break-down of student ICT competencies, based on responses to the entry questionnaire: (i) Initial abilities related to basic digital literacy skills; (ii) Initial abilities related to web-browsing and Email usage; and (iii) Initial abilities related to Microsoft Word.

Basic Digital Literacy Skills (Answered by 598 Students)		
	Unable to:	Able to:
Windows Operating System	231	367
Computer Hardware	120	478
Computer Software	133	465
Desktop Management	228	370
Identification of Virus Alerts	378	220
ICT Etiquette	98	500

Table 4: Students' initial indication of their abilities related to Basic Digital Literacy Skills.

The results indicate that many students did not possess basic digital literacy skills, including, (i) navigating the Windows Operating System; (ii) identifying basic computer components; (iii) understanding basic software; (iv) desktop management; (v) identification of virus alerts; and (vi) basic ICT etiquette in a computer lab and online.

The DAL Programme remains crucial as, lecturers expect students to prepare electronic academic assignments, reports and presentations. The DAL facilitators share an awareness of this expectation and the need to address it:

"[E]xpecting a student [...] who does not have any experience with computers, to be highly efficient in his tasks as a student, that expectation is almost ludicrous. [...] [S]omebody has to facilitate that transition [...] from being a novice computer user to being a good computer user leading on to becoming a great computer user."

And:
"[T]hey won't complete their studies efficiently without having basic computer literacy. [...] There are those that did CAT at high school and they are familiar, but there are those that have never even worked on a computer. We largely cater to those people because it will be impossible for them to complete their degree or their studies if they cannot type their assignments [...][or log] onto Ikamva to do their tests."

Many local schools offer the subject Computer Applications Technology (CAT) from grade 10-12, which includes theory and practical aspects (De La Salle Holy Cross College High School website, 2010). However, many students who enter university and have not taken CAT, have failed it or have not had the opportunity to engage with ICTs at all. This gap must be addressed by the DAL Programme.

Table 5 and 6 deliberate the need for the DAL Programme in relation to expectations regarding communication, completing academic papers and submissions of assignments.

Internet / Email Skills (Answered by 307 Students)		
	Unable to:	Able to:
Navigate the Internet	21	286
Conduct Academic Searches	22	285
Access Email	17	290
Send and Retrieve Email	54	253
Add an Attachment	29	278
Email Etiquette	52	255

Table 5: Students' initial indication of their abilities related to the Internet/Email.

Even though it is apparent that most students are able to complete the above tasks, related to web-browsing and email, it is important to note that there remains a need for the DAL Programme to assist those students who are being left behind academically. *Digital Strangers* who enter university without ICT access and knowledge, are experiencing a widening digital gap "as they have to prioritize ICT use and make hard choices which generally do not include making use of social software and exploiting Web 2.0 opportunities" (Brown & Czerniewicz, 2010, p.8).

Throughout a student's university career, they are expected to navigate the internet and conduct academic searches via search engines. Lecturers also expect students to make use of the library's electronic database for research purposes and submit academic assignments, reports and presentations via iKamva, email and Google Applications.

The results in Table 6 emphasize the high number of students who, upon entering the DAL Programme report struggling with basic Word processing tasks required to succeed at university on a daily basis namely, (i) Creating, editing, formatting, saving and management of a Word document and, (ii) Storage of content in various locations such as, the desktop, a flash-drive, or cloud-based systems.

Microsoft Word Skills (Answered by 1360 Students)		
	Unable to:	Able to:
Adjust / Set Line Spacing	383	977
Check Spelling and Grammar	555	805
Check Word Count	737	623
Set Margins	685	675
Set Page Orientation	709	651
Make Columns	588	772
Set a Watermark	629	731
Insert a Border	554	806
Create a Cover Page	622	738
Insert an Illustration	853	507
Create a Header	586	774
Create a Footer	596	764
Create a Table of Contents	777	583
Insert a Footnote	1004	356
Save a File	769	591
Sending/Retrieving a document to/from the Recycle Bin	941	419

Table 6: Students' initial indication of their abilities related to Microsoft Word.

Looking at these results we see that a large number of students are unable to complete basic ICT tasks and therefore rely on the DAL Programme to succeed academically. Implementation of this programme by 17 departments at UWC, who identified a need for student training in ICT basics, in order to cope with their tertiary studies, is eye-opening considering that according to Prensky (2005), the Digital Native generation should be fluent in the digital language.

In the following section we examine the results from the ICTs Access Survey.

4.3 ICTs Access Survey

The ICTs Access Survey was designed and distributed after analysing the existing data and identifying a gap related to whether or not first year students had ICTs access off campus. The survey expanded the existing data and provided vital information needed for this study. Each section of the ICTs Access Survey will be discussed in relation to student responses.

The survey entailed four sections namely, (i) *Background Information* which gathered basic data on participants, while protecting anonymity; (ii) *Cellphones* which assessed student access and usage; (iii) *Computer/Laptop/Tablet* which measured participant access and usage; and (iv) *Internet Access (usage patterns)*, which assessed student internet access, how frequently they used the internet and for which purposes.

The *Background Information* section of the survey is not discussed below as it has been covered in the *Sample* segment of this paper.

4.3.1 Cellphones

The first question posed asked: *Do you own a personal cellphone?* The majority responded *Yes* (n=1390, 98.3%) while a small group responded *No* (n=24, 1.7%). Participants who answered *Yes* were then asked: *What do you primarily use your cellphone for?* This question included an eleven-option checkbox list and participants were allowed to select multiple options. Table 7 reveals that *Calls* (n=1178, 83.3%) emerged as the top use, *Chat* (n=1157, 81.8%) second and, *Social Networks* (n=1076, 76.1%) as the third major use. Apart from the *Other* (n=27, 1.9%) category, which was the least selected option, the lowest ranked uses were *Academic Purposes* (n=896, 63.4%), *Games* (n=536, 37.9%) and *Career Info* (n=462, 32.7%).

Cellphone Usage Results		
	Number:	Percentage:
Calls	1178	83.3%
Chat (e.g. Whatsapp / WeChat / Viber etc.)	1157	81.8%
Music	1076	76.1%
Internet Searches (Recreational)	1054	74.5%
Email	1052	74.4%
Texts / SMS / MMS	1036	73.3%
Taking Photos / Video	993	70.2%
Academic Purposes	896	63.4%
Games	536	37.9%
Career Info	462	32.7%
Other	27	1.9%

Table 7: ICTs Access Survey results related to Cellphone Usage.

The following question asked: *If you own a cellphone, can you access the internet on it?* Most responded *Yes* (n=1335, 94.4%) and a small number responded *No* (n=44, 3.1%) indicating that most respondents had internet access on their phones. This was expected, considering that accessing the internet from your phone, is the cheapest internet option (Grandtruck in Brown & Czerniewicz, 2010) and that South Africa is 6th internationally for internet access via mobile devices (Brown & Czerniewicz, 2010). The final question in the section related to *how the internet was accessed* and three options were provided namely, *Using free Wi-Fi* (n=870, 61.5%), *Using paid Wi-Fi* (n=305, 21.6%) and *Using Airtime / Mobile Data* (n=1196, 84.6%). Most students used airtime or mobile data off campus which probably is a result of no other access or, bandwidth limitations resulting in slower speeds or unreliable connections (Arabasz, Pirani, & Fawcett, 2003).

Most respondents were therefore cellphone users and accessed the internet on them thus, having some familiarity with aspects of digital technology. Although the primary uses were for non-academic purposes, approximately two-thirds of the respondents indicated some cellphone use for academic purposes. Therefore, potential exists for cellphones to be a useful tool for academic purposes especially once more mobile compatible platforms are implemented (Brown, 2003).

The following data shed light on respondents' use of computers / laptops / tablets.

4.3.2 Computer / Laptop / Tablet

In this section the aim was to establish how many students had access to computers, laptops and/or tablets. The first question asked whether or not the student had access to any of these at home or, at their campus residence. The options were, *Yes* (n=1153, 81.5%) or, *No* (n=261, 18.5%). Students then selected all the devices they had access to at home. The most selected responses being *Laptop* (n=965, 68.2%), followed by *Computer* (n=453, 32%) and lastly, *Tablet* (n=414, 29.3%). Additionally, participants were asked whether they had internet access on their device by selecting *Yes* (n=979, 69.2%) or *No* (n=250, 17.7%). The *primary use* of these devices was then explored and participants were asked to select multiple options from a list. The top selection which varies drastically from the cellphone usage responses, was *Academic Purposes* (n=1024, 72.4%), followed by *Email* (n=915, 64.7%). The lowest ranked uses were *Games* (n=342, 24.2%) and *Skype/Video Chat* (n=239, 16.9%).

Through examining the data, researchers identified the need to examine access beyond the immediate home environment too. The questionnaire therefore asked students to indicate whether they had *access outside the home* by selecting *Yes* (n=1032, 73%) or *No* (n=382, 27%). This was followed by a question regarding *where* they had access and a list with multiple options was provided. The responses: *On Campus* (n=889, 62.9%), *Family/Relative* (n=379, 26.8%), *Friend/Partner* (n=311, 22%), *At Work* (n=55, 3.9%) and lastly, *Other* (n=34, 2.4%). Not surprisingly, the question related to the primary use of these computers produced similar results and the same order of priority, to the use of a home computer, laptop or tablet. *Academic Purposes* (n=946, 66.9%), followed by *Email* (n=860, 60.8%) and, the least selected being *Games* (n=211, 14.9%) and *Skype/Video Chat* (n=120, 8.5%).

Computer / Laptop / Tablet Usage Results		
	Number:	Percentage:
Academic Purposes	1024	72.4%
Email	915	64.7%
Internet Searches (Recreational)	880	62.2%
Microsoft Office	875	61.9%
Social Networks	567	40.1%
Games	342	24.2%
Skype / Video Chat	239	16.9%
Other	62	4.4%

Table 8: ICTs Access Survey results related to Computer / Laptop / Tablet Usage.

4.3.3 Internet Access (Usage Patterns)

The last section in the survey related to *Internet Access*. Although the other sections had questions related to this topic, this section focused on how much *time* participants spent online and how they *accessed* the internet.

The first question in the survey was: *On average, how much time do you spend online/accessing the internet per day?* Responses included, *30 minutes - 2 hours* (n=647, 45.8%), *2-5 hours* (n=390, 27.6%), *0-30 minutes* (n=206, 14.6%), *5-8 hours* (n=120, 8.5%) and *8 hours+* (n=51, 3.6%). Researchers therefore deduced that most students do not spend excessive amounts of time on the internet and it becomes clear why, when delving deeper.

The second question posed was: *How do you most frequently access the internet?* Responses included, *Hand-held Device* (n=873, 61.7%), *Computer/Laptop* (n=529, 37.4%) and *I don't ever access the internet* (n=12, 0.8%). When we consider that hand-held devices are the most popular form of internet access amongst students, it makes sense that time spent online would be limited as, "the cost of mobile and wireless technologies to the user […] will probably still restrict African learners to the use of mobile phones for a few years" (Brown, 2003, p.11). It is not surprising that this was the most prevalent form of access as, South Africa has "the highest cellphone uptake in Africa" (Brown & Czerniewicz, 2010, p.10).

While these results indicate that students have varied levels of access to electronic devices and the internet, gaps still exist for improving use (especially on mobile devices) and academic performance. The following section looks at the observations by DAL Facilitators in relation to pass and failure rates.

4.4 Moderation Observations by DAL Facilitators

4.4.1 Assessment and Moderation Process

The assessments within the DAL Programme consist of Multiple Choice Questions (MCQs) and Practical Tests. All assessments are aligned with the module descriptor and set in accordance with course requirements. Once questions are drafted, they undergo multiple checks by team members, before approval for use in the official assessment process.

Approved tests are uploaded onto iKamva or the network drive and tests are completed in the computer laboratory on campus. MCQs are marked automatically through the system and tests on the network drive are marked manually by the DAL Team. Marks are captured onto an electronic marking grid which minimises errors and, these pre-moderation marks are accessible by faculty and students.

The following section analyses the student performance results.

4.4.2 Assessment Results

The numbers reflected in this section depict 2014's assessment results after students had completed the programme. These grades are used as during the data collection phase, the 2015 results were not available.

The results were extracted from the IDMPS and captured on the institutional Marks Administration System of the university. Other data included the feedback received from the DAL facilitators who have worked in the natural environment and have witnessed the evolution of the programme.

Table 9 depicts the pass and failure rates of students. Despite the majority of our sample falling into the Digital Natives category, we see a high failure rate at the conclusion of the DAL Programme. As Brown and Czerniewicz (2010) note, "[i]nequality of access is a reality for South African students from low socio-economic groupings" (p.8) as well as those who do not have English as a home language. The digital divide overlooks what causes inequalities (Wolf in Moodley, 2005) as, it puts "too much emphasis [on][…] technology and has thus drawn attention away from the other divides" and factors which slow development (Moodley, 2005, p.7).

Pass and Failure Rates of DAL Programme (1st Semester 2014)			
Faculty:	Passed:	Failed:	Exam not taken:
Arts	132	70	9
Community and Health Sciences	141	23	7
Education	213	87	88
Economic and Management Sciences	545	585	73
Law	478	31	83
Dentistry	105	4	4
Total	**1614**	**800**	**264**

Table 9: Pass and Failure Rates of the DAL Programme for the 1st Semester of 2014.

Feedback from the DAL facilitators highlights this divide at UWC:

"The majority of them, what contributes to when they pass is that they already have prior personal computer skills. The rest, they know how to do things on their phone or tablet but have not been exposed to a PC. Of course there are also those who come from deep rural areas, who have never even seen a PC. […][H]ow do you structure your session to accommodate everyone?"

Another noted:

"Some students can communicate in English but others find it challenging to even have a conversation and it is therefore difficult for us as facilitators to establish what it is they [...] understand. [...] The rest of the class is kept behind as we are trying to explain or assist these students. Sometimes they don't say anything or ask for help at all and this could also lead to a student failing."

It is thus clear that within an institutional context there is "insufficient empirical evidence to support the [Digital Natives] concept" (Bullen et al. in Brown & Czerniewicz, 2010, p.3) as students who fall into this category may still be struggling to grasp basic concepts due to a range of factors. The role the DAL Programme plays is crucial despite various limitations preventing a 100% pass-rate upon completion of the programme.

In alignment with the IOP the DAL Programme makes a positive contribution to skills students need, not only at university but also once they transition into the working environment (Goal 2, Strategy 2). The programme is also committed to the "[g]reater infusion of technology into the curriculum" (Goal 2, Strategy 1, p.13).

5. Conclusion

The findings prove that although many students entering their first year at UWC may have had previous exposure to technology, there remains a need to educate students on the basic digital literacy skills needed at university level through specific support programmes such as the one offered by the DAL. The data suggests that Marc Prensky's theory which assumes an entire generation is differently wired due to technological exposure is flawed. It is therefore impossible to accept a blanket theory which our data collection and analysis, proves untrue. Possible avenues for future research include further investigation into addressing the failure rate of students who fall into the Digital Native category.

6. Acknowledgements

7. References

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