



Inaugural lecture of

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**Multimodaling and multilanguaging:
charting student (open) access and
(communal) success through multiliteracies**

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ABSTRACT

Multiliteracies can support student open access and communal success in the context of multimodaling and multilanguaging and ultimately in the process foster self-directed learning. From academic literature the concerns regarding literacy levels are clear and the overemphasis on reading and writing (versus other skills) is evident. Furthermore, there is a need for an extension of multimodal learning in higher education. Multimodaling in terms of communication, learning/teaching and delivery must be accounted for and accommodated. A non-compartmentalised view of modes and modalities is necessary in educational contexts. In this regard, instructional technology can play an increasingly important role. The blending of approaches, delivery mediums or technologies will increasingly become the norm and lecturers and students should, therefore, be able to function effectively within the different modalities. Yet, a clear digital divide in South Africa poses problems to the effective implementation of multimodal learning. Support in terms of computer literacy and even computer anxiety must be interrogated in higher education.

When considering multimodal learning and multiliteracies, the multilingual nature of students at universities cannot be ignored. As such, a move towards multilanguaging by means of technology is proposed. There is ample evidence of successful integration of African languages in higher education and through technology multilanguaging can be achieved. In addition, language attitude planning as operationalisation of the language status planning process should be accommodated. In terms of access, the concept of open education is highly relevant in a South African context. Open educational resources can provide many possibilities in terms of both formal and epistemological access to a range of resources. Success in higher education can be reached through a communal constructivist approach where collaboration is facilitated through multimodal support. In addition, success would imply that students are self-directed and possess relevant multiliteracies. It is evident that the discussion on what literacy entails should be ongoing and be revised and repurposed as required during the learning, unlearning and relearning process.

1. Introduction

With this inaugural lecture, I would like to achieve two things: these aims have been derived from the etymology of “intree” as used in the word “intreerede” and the word “inaugural”. In the first instance, the root of the Afrikaans word “intree” is “tree”, which can be traced back to the Old Dutch – “tredan” – and Middle Dutch – “treden” or “terden” – and means to tread or step (Van der Sijs, 2010). Furthermore, the origins of the word

“inaugural” can be traced back to the word “augur”, which refers to a soothsayer or diviner. In turn, the word’s etymology can be traced to “bird” and “telling”. In the past, soothsayers observed the flight and cries of birds especially to consecrate or install (OED, 2018a; Skeat, 1897:23). Hence, I am approaching the posed topic in terms of aspects I have tread on or researched in the past, but I will also predict and pose some challenges to myself and the relevant discourse communities.

Bringing this back to the aim of this lecture: I would like to consider how access and success can be ensured by means of multiliteracies in a context where different modes of delivery and integrated technologies (multimodaling) as well as the presence of various languages and levels of literacy (multilanguaging) are the norm. It is mentioned in the *Open Learning Policy Framework for Post-School Education and Training* (DHET, 2017:373) that “[o]pen learning is fundamentally about **access** and **success**, with flexibility of provision contributing to expanded access, and quality of provision contributing to improved student success” [my emphasis]. Some key aspects necessary to enable access and success are already mentioned in the title and form part of a communal approach to learning and openness towards resources. But in the context of open access and communal success, the fostering of self-directed learning would also be a requirement.

In approaching the reality of diversity and multilingualism the painting *The Tower of Babel* by Pieter Bruegel the Elder (1563) is considered.



Figure 1: Vienna ‘The Tower of Babel’ by Pieter Bruegel the Elder (1563a)

This painting uses the biblical narrative of the Tower of Babel (Genesis 10:8-10 to 11:1-10) as inspiration. In this narrative all the people in the world spoke one language and it was decided that in Shinar they would build a city as well as a tower that would reach the heavens. But God decided to confuse their language and the people were scattered over the earth without the tower being completed. Hence, the etiological or origin myth of multilingualism came into being. Bruegel painted three paintings with the Tower of Babel as subject (Morra, 2007:200; Narusevicius, 2013:31). Where the Vienna painting “represents humanity’s ruinous attempt to control nature and the natural order through history” the so-called Rotterdam painting is regarded as “an allegorical, philosophical and utopic visual metaphor of humankind in a natural and idyllic state of grace – a moment of imminent transcendence” (Morra, 2007:206). But for the purpose of this discussion I will mainly focus on the 1563 painting housed in the Kunsthistorisches Museum in Vienna.

According to Mansbach (1982:43) the meaning of the painting has traditionally been based on the Biblical account with it portraying pride being punished or representing an absurd world or even the arrogance and inadequacy of humans. However, Mansbach (1982:44) notes that “the Biblical basis for Bruegel's Vienna panel is marginal, seemingly serving the painter more as a point of departure than as a program”. Furthermore, it is clear that this painting differs from earlier and other paintings of the Tower of Babel especially with the foregrounding of the king in the left corner: in the Christian tradition identified as King Nimrod, in early commentaries identified as Alexander the Great and in terms of Bruegel’s milieu King Philip II of Spain who dominated Flanders at the time (Mansbach, 1982:46; Narusevicius, 2013:31, 37). Hence, the regal hubris is can be interpreted in various guises.

Historically, according to Morra (2007:202), this painting “is said to reflect the ‘linguistic’ and cultural challenges faced by an economically prosperous, cosmopolitan and multicultural centre, such as sixteenth-century Antwerp”. The painting in fact displays a tower situated in a harbour city, very similar to Antwerp, with the tower showing elements of the Roman Colosseum and Babylonian ziggurats¹ (Mansbach, 1982:47; Morra, 2007:203; Narusevicius, 2013:36; Snow, 1983:43-44). Moreover, Snow (1983:41) remarks that the tower “takes on the look of an exfoliating presence, an opening in nature where transformative energies (catalyzed by human industry) are erupting” and that it shows a

¹ The word *ziggurat* is derived from the Assyrian word "ziqquratu" which refers to a "height, pinnacle, top of a mountain, temple-tower" (OED, 2018b).

“non linear, non-hierarchical flow shaping nature's contours and integrating its various levels both with one another”.

Mansbach (1982:47) concludes that “the ant-like laborers are engaged in transforming a mountainous rock into a colossal turret”, however, “[t]his incredible task in nothing less than the total transformation of nature and the natural order through the compulsion of kingly hubris” and finally that “[n]o level is finished nor is there evidence that any ever will be”. Furthermore, Morra (2007:203) approaches the painting in terms of Derrida’s (2007) interpretation of the event “constituted by contradiction and incompleteness, authorial interrogation, genealogical dissemination, and the necessary and impossible task of translation”. Narusevicius (2013:31) also notes for Derrida “full communication became impossible after Babel”. For Snow (1983:46) the “painting is ‘about’ the act of creation as well as the project of civilization and the enculturated self”.

Moving on to the implications of this painting for this lecture: firstly, we function within a post-Babel world where multilingualism is common. However, the modern day ziggurats or towers are in fact hegemonies established by a select few major world languages. As with Philip II’s linguistic dilemma in only being able to speak Castilian and not French or Dutch (Morra, 2007:208) many lecturers find themselves in a position within the educational project being excluded from the multilingual reality and the possibilities of multilingualing (cf. 3). Despite the incompleteness of the tower – which acts as a cautionary tale in terms of the proposals presented in this lecture – a number of lessons can be learnt and they are presented in Table 1.

Table 1: Lessons learnt from the Bruegel’s Tower of Babel in terms of multimodalizing and multilingualing

Tower of Babel	Multimodalizing and multilingualing
The tower is built on solid rock	Any interventions must be based on a solid theoretical basis and in-depth research
The king initiated the tower and visits the building site	Leadership and supervision is necessary throughout the process
Different craftsmen are involved in the building process	An interdisciplinary approach is required
Different tools are used for specific tasks	Applications and resources must be selected for the different purposes

The tower is integrated into the natural surroundings as well as the existing city	Any actions should be context specific and be aligned with existing structures
The tower is not finished	This will involve an ongoing process

From the Tower of Babel I now move to the wider context in which this lecture should be considered. Currently, there is concern regarding access to higher education in terms of financial issues of which the *#feesmustfall* movement (cf. Langa, 2017) is a symptom. Access has also been affected due to historical imbalances in the country. Moreover, in South Africa and worldwide, there has been a trend to increase student access to universities leading to massification (Hornsby & Osman, 2014; Mohamedbhai, 2014; Msila, 2006:82). According to the National Development Plan 2030 (National Planning Commission, 2012:316-317), an increase of 71% has been noted in students at university level from 1994 to 2009 and the aim is for South Africa to have over 10 million university graduates by 2030. This document also acknowledges problems in terms of the quality at universities concerning “low participation, high attrition rates and insufficient capacity to produce the required levels of skills” (National Planning Commission, 2012:317) are observed. It is also noted that “ICT can help overcome the infrastructure limits to further expansion of higher education” (National Planning Commission, 2012:320). However, in this lecture I propose that any such expansion would need to consider adequate support in terms of multiliteracies and the fostering of self-directed learning.

Furthermore, the issue of success in education in general is often noted. Concerns are continually raised on popular media platforms and in academic circles regarding the poor literacy rates at different levels of education. Graff’s (1991:xxxvi) reference to the “bombardment of woeful tales of literacy decline” show how universal and timeless such concerns are. Reference to the Progress in International Reading Literacy Study (PIRLS) and Trends in International Mathematics and Science Studies (TIMSS) are considered standard elements for contextualisation of academic publications on literacy or education in South Africa. Through the PIRLS an impression of Grade 4 and 5 learners’ reading and comprehension skills is obtained (Howie *et al.*, 2017; Mullis *et al.*, 2017) and the TIMSS provides a glimpse of Grade 9 science and mathematics skills (Reddy *et al.*, 2015). Another assessment hurdle of public concern is the Grade 12 results. In this regard, newspaper and online news website reports describe the Grade 12 results as “the annual freak show” (Jansen, 2018) and refer to the “shocking state of literacy in SA” (Anon., 2017) and that the “education system is in crisis” (Farber, 2017).

Language and literacy levels are often blamed for poor results. Halliday (2007:176) refers to two forms of the “language failure theory”: (1) in terms of language as a system, the language of students is “deficient in some respect” or (2) with language as an institution, the language (or variety) is different to the standard language “required by the educational process”. In both instances, Halliday does not agree with these reasons for failure and questions that “educational failure is explained as language failure”.

These statements bring me to what Socrates, who actually “disparaged literacy” (Fang, 2015:14), said to Phaedrus:

Yes, because there’s something odd about writing, Phaedrus, which makes it exactly like painting. The offspring of painting stand there as if alive, but if you ask them a question they maintain an aloof silence. It’s the same with written words: you might think they were speaking as if they had some intelligence, but if you want an explanation of any of the things they’re saying and you ask them about it, they just go on and on for ever giving the same single piece of information. Once any account has been written down, you find it all over the place, hobnobbing with completely inappropriate people no less than with those who understand it, and completely failing to know who it should and shouldn’t talk to. And faced with rudeness and unfair abuse it always needs its father to come to its assistance, since it is incapable of defending or helping itself. [275 d4-e6] (Plato, 2002:70).

In essence, the written answers in tests and examinations by learners and students seem to be as silent as the myriad of statistics and reports that follow when it comes to an in-depth interrogation of the issue. Yet, for the sake of this lecture it is sufficient to note that in terms of literacy, clear problems and disadvantages are evident amongst many South Africans.

Despite a move to embrace multimodal multiliteracies, especially since the work done by the New London Group (Cazden *et al.*, 1996; Olivier, L., 2016:27, 42), there is still a preference to make use of reading and writing when it comes to the measurement of literacy and even in assessments throughout the different levels of education in South Africa.

In this lecture, my I will draw from theoretical foundations from both learning theories and applied linguistics. The link between instructional technology and communication theory

was already established in terms of early work on the usage of audio-visual material in education (Ely, 1963; Januszewski, 2001:18). In this inaugural lecture, I aim to explore how multiliteracies can support student open access and communal success in the context of multimodaling and multilanguaging and ultimately foster self-directed learning.

2. Multimodal learning

2.1 Modes and modalities

The term *mode* is defined by Kress (2003:35) as “the name for a culturally and socially fashioned resource for representation and communication”. Picciano (2017:172) states that there is a need for “multiple learning modalities that allow learners to engage in ways they prefer” in terms of Howard Gardner’s theory of multiple intelligences. In this regard, Picciano (2017:172) also acknowledges that “too much teaching and learning is linguistically based (reading, writing, and speaking) and that the other intelligences are underutilized”. This brings us to a more overt and structured integration of multimodalities but also support for multiliteracies in all classrooms.

The term *multimodal learning* is used to refer to learning taking place in terms of different modes. In essence, the understanding of this concept derives from literature on multimodality and blended learning. Furthermore, Bateman *et al.* (2017:7) define multimodality as “a way of characterising communicative situations (considered very broadly) which rely upon combinations of different ‘forms’ of communication to be effective”. Kress (2003:1-2) emphasises the increasing importance of the image as a form of communication versus language-as-writing and each of these modes of representation provides different possibilities. The challenge remains to translate these forms of communication as means of learning and teaching. Multimodality can also – as it is already used in literature – be found at three different levels that act interactively:

Multimodal communication

- Transfer of information by means of different modes: verbal (spoken and written) and nonverbal (pictures, emojis, sounds, animations, gestures)

Multimodal learning/teaching

- Learning/teaching face-to-face, using written or graphical printed resources, text books, technologies, OER, etc.
- More than one sensory mode is also implied

Multimodal delivery

- Combining contact, distance and hybrid modes of delivery

Using images in communication and by implication learning, is not a new concept. Images (often instructional by nature) have been used for quite some time now – messages communicated from the cave paintings in the Chauvet caves more than 30 000 years ago (Chauvet *et al.*, 1996; Fang, 2015:15) or even local San rock art in South Africa that can be dated up to 3 000 years old (Lewis-Williams, 2011:24). Evidence of the transfer of information on clay tablets can be traced back to 8 000 BCE along the Euphrates River (Fang, 2015:15). Early communication reduced to “writing” was done by means of pictograms and ideograms that can bear a resemblance in function with current usage of emoticons and emojis. Some of these pictograms and ideograms led to what we now know as the alphabet of today. Oral traditions of knowledge transfer are also common all over the world (cf. Graff, 1991:306). Ngūgī Wa Thiong'o (1997:15) highlights the universality of speech in this regard. Furthermore, Prah (2018:10) notes that the oral rendering of language preceded other forms of literate renderings. Hence, multimodal communication has been, historically, the norm rather than the exception. Schaaf and Mohan (2017:37) also note that “[d]igital learners prefer processing pictures, sounds, color, and video before they process text”. Despite the prevalence of multimodal contexts, Bateman *et al.* (2017:7) are of the opinion that we know little on how this “fundamental human capability operates” and that traditional approaches to multimodal communication imply compartmentalisation.

In our current context, we are challenged to look at how multimodal communication can be done through the use of instructional technology.

2.2 Instructional technology

In terms of multimodal learning and teaching, instructional technology has been one of the essential resources used in classrooms. Saettler (1968:11) traces the origins of instructional technology to the ancient systemisation of knowledge and the invention of “pictographs or sign writing to record, preserve, transmit and reproduce information”. The link between instructional technology and language (and by implication communication and literacy) is, therefore, evident historically.

According to Saettler (1968:13, 14-15), the Sophists, in ancient Greece, can be regarded as the first instructional technologists. However, there was a disagreement between them and Plato with regard to their views of technology. The Sophists “honoured all technology” and Plato “believed that technology was unworthy of gentlemen and had no place in their education”. Furthermore, Saettler (1968:22) identifies John Amos Comenius (1592-1670)

as “the first real forerunner of modern instructional technology”. In Comenius’s work *Orbis Sensualium Pictus* he states (as noted in the translation by Charles Hoole) in the preface that “For it is apparent, that children (even from their infancy almost) are delighted with pictures, and willingly please their eyes with these sights: and it will be very well worth the pains to have once brought it to pass, that scarecrows may be taken away out of wisdom’s gardens” (Comenius, 1810:8). Saettler (1968:23) concludes that “the teaching of Latin and the sciences was accomplished by associating objective reality, or its pictorial representation, with abstract cognate word symbols”. Today, however, instructional technology has moved past the inclusion of pictures, animations, multimedia and even video feeds – the requirements in terms of technological sophistication and interaction are ever increasing. This is especially relevant as instructional designers must compete with social media and other technology-based distractions and in essence, instructional artefacts should become a means of fulfilling the role of social media or a distraction in the form of games (cf. Schaaf & Mohan, 2017).

In general, the development of instructional technology is consequently intertwined with the advancement of education. In this regard, Joseph Lancaster (1778-1838) aimed at “special classrooms which would make the most effective use of instructional media and student grouping” (Saettler, 1968:27) where even sand was spread on desks to practise writing skills (Saettler, 1968:29). Furthermore, Johann Pestalozzi (1746-1827) investigated instruction based on education theories and “focused on providing content to ideas through first-hand experience or giving significance to individual expression by means of ideas” (Saettler, 1968:32). Friedrich Froebel (1782-1852) was of the opinion that “free self-activity directed the growth of the learner and allowed him active creativeness and social participation to merge his personality with the spirit of humanity” (Saettler, 1968:39). In light of Johann Herbart’s (1776-1841) work, “[i]nstruction became highly systematized, and cognitive elements once again came into central focus in the instructional process” (Saettler, 1968:46). The role of B.F. Skinner is also clear in the development of so-called teaching machines and programmed instruction (Januszewski, 2001:33). In terms of research concerning instructional technology, a systematic study can be traced back to the work of Edward Thorndike (Januszewski, 2001:33; Saettler, 1968:53). Sidney L. Pressey developed the first teaching machines in the 1920s and provided instant feedback and even candy rewards (Januszewski, 2001:34-35).

Since the advent of computers, such devices are increasingly used in educational contexts. In 1965, the first computer was installed in a school in the United Kingdom and the use of computers in these contexts increased internationally after the release of the first microcomputers in 1978 (Holmes & Gardner, 2006:40). Apart from various levels of computer-based, computer-mediated, computer-assisted and computer-managed instructional activities, the development of e-learning has been quite significant. Fee (2009:16) defines e-learning as “an approach to learning and development: a collection of learning methods using digital technologies, which enable, distribute and enhance learning”. In terms of multimodal learning and a teaching context, the mixing or blending of e-learning and other more traditional approaches has been relevant.

The affordances provided by game-based learning and gamification in education cannot be ignored. The concept of gamification also links up Johan Huizenga’s concept of *Homo Ludens* or *Man the Player*. As Huizenga (1949:1) notes that “[i]n play there is something ‘at play’ which transcends the immediate needs of life and imparts meaning to the action” and that “[a]ll play means something”. Schaaf and Mohan (2017:1) acknowledge how game-based learning and gamification “have the potential to disrupt education” but that they “have the potential for good as well”. The challenge is then to balance the correct blend of face-to-face and e-learning or even contact and distance delivery in some instances. Furthermore, in using gamification in educational settings research on neuroscience show that “experiences with an emotional stamp” can be utilised ensuring that these experiences are “committed to memory” (Dubinsky *et al.*, 2013:319).

2.3 From blended learning to multimodal learning/teaching

In this lecture, *blended learning* refers to the mixing of approaches, delivery mediums or technologies and can also be defined as an integrated approach to learning with traditional face-to-face and computer-based or web-based approaches (cf. DHET, 2017:362; Hew & Cheung 2014:2-3; Holmes & Gardner 2006:10; King & Fricker, 2007; Littlejohn & Pegler 2007:1, 26).

Bersin (2004:56-83) determined two approaches to blended learning: the programme flow approach and the core-and-spoke approach. Bersin (2004:56) describes the programme flow approach as an approach where “one creates a step-by-step curriculum that integrates several media into a chronological program or syllabus”. In this approach, each section or chapter builds, therefore, on the previous one and learners go through the

content in a linear fashion with an assessment at the end. In the core-and-spoke approach, “materials, interactivities, resources, and assessments” are provided as supporting material around a fundamental training approach (Bersin, 2004:56). Different media and assessments are, therefore, used but there is no linear building upon each other.

Any blended learning module or course have certain requirements informing the necessary multiliteracies involved in such contexts. In this regard, Holmes and Gardner (2006:111) identified the following requirements:

- Learners must view themselves as producers and not just as consumers of information.
- It must be a process of constructing knowledge and this construction must be a communal activity.
- Learners must be trained in the various technologies they are using, and particularly the abilities needed to communicate or present to their peers.
- Authentic coursework must be included.
- Presentation to peers must form a fundamental part of the communication activities, including placing these activities on the Web for use by learners in subsequent years and for inspection by the wider community.
- Active collaboration by all learners in both the preparation and the presentation of the new knowledge and other outcomes for a shared and wider audience is needed.
- Group work and project-based learning pedagogies must be incorporated.
- Appropriate assessment techniques, such as portfolios that may benefit individuals, their peers and the learners that follow them, must be included.
- Resources must be presented in good time to enable pre-reading and optimum use of class time for communal discussion and group work.
- Peer tutoring and mentoring must be included with more experienced learners taking on the role of mentors.
- Learners must take on responsibilities, such as leading a discussion group.
- Specific elements of course content must be developed.

It is important to note that the use of the term *blended learning* is often criticised, as it can denote multiple meanings. In this regard, Oliver and Trigwell (2005) assert that the term is “ill-defined and inconsistently used”, that the learners’ perspectives should also be considered, especially in terms of the varied experiences of learners and that blended

learning tends to be the norm in higher education. The concept of multimodal learning and teaching should, therefore, be used.

However, in education – and even in higher education – the realities of the digital divide in terms of students cannot be ignored.

2.4 The digital divide

The term *digital divide* relates to the difference between individuals and groups in terms of access to technology – those who can increase their wealth in contrast to those who are not as fortunate in terms of technology and who are unable to achieve any degree of digital wealth (cf. Graham, 2006:15; Holmes & Gardner, 2006; Lesame, 2005; Mason & Rennie, 2006). Lesame (2005:3) defines this concept in the following way: “The term ‘digital divide’ refers to the gap between the access of individuals, households, organisations, countries and regions at different socio-economic levels to ICTs and Internet usage. Thus, the digital divide not only refers to the gap between the affluent, urban ‘haves’ and the impoverished, rural ‘have-nots’, but also to the digital and ICT chasm between the African continent and the developed world”. Furthermore, DiMaggio and Hargittai (2001:8) distinguish between five broad forms of inequality in terms of a digital divide: 1) variation in the technical means; 2) autonomy in the use of the Web; 3) inequality in skills; 4) inequality in social support; and 5) variation in the purposes of using technology.

However, a binary view of a digital divide is questioned in literature and a more nuanced approach is suggested (Hargittai, 2002). Bennett *et al.* (2008) question the “moral panic” around the so-called “digital natives”. Bennett *et al.* (2008:783) state that “[w]hile technology is embedded in their lives, young people’s use and skills are not uniform. There is no evidence of widespread and universal disaffection, or of a distinctly different learning style the like of which has never been seen before”. Any increase in the use of technology in classrooms in order to support multimodal learning and teaching would, therefore, require an awareness of the complexities in terms of a prevalent digital divide.

In South Africa, the digital divide – in terms of experience and access to technology – is very complex with great differences in wealth and access to technology, often aligned with historical differences in terms of racial backgrounds (Hoadley, 2017). The latest national statistics from Statistics South Africa (2016:146, 150) indicate that approximately 24,5% of

South African households have computers and about 28% (15 618 303) South Africans have indicated that they have access to the Internet. In terms of using open educational resources (cf. 4.2), it is, therefore, problematic if an e-learning setting is “unfamiliar or technically inaccessible to inexperienced learners” (Lane & Van Dorp, 2011:9).

In essence, the lack of skills in terms of technology can become a stumbling block in the fostering of self-directed learning in contexts where technology needs to be employed. The distinction between so-called digital natives and digital immigrants also needs to be considered.

2.5 Digital natives and immigrants

Marc Prensky (2001:1-6) describes learners who are more computer literate than their teachers as *digital natives*. In contrast, the teachers or lecturers are then considered *digital immigrants* (cf. Olivier, J., 2016). Bateman *et al.* (2017:46) note that “insufficient theoretical understandings of what is involved in multimodal artefacts and performances will leave the would-be educator trailing behind the competence pupils are already bringing to their engagement with diverse media”. As stated in terms of the concept of a digital divide, care is most definitely needed. Brown and Czerniewicz (2010) indicate that in a South African context, differences occur not in terms of age but rather access and opportunity and “digital apartheid is alive and well”.

In an age where immigrants are worldwide under the spotlight and negative attitudes pervades against the unknown (cf. Hellwig & Sinno, 2017), the term *immigrants* can also be considered problematic. In terms of a South African context, Brown and Czerniewicz (2010:359) note that the term *native* “is synonymous with colonialism, apartheid, and domination and does not connote images of superiority and the future”. As such, these terms should not be considered relevant for a South African context.

Labelling aside, there are cause for concern in terms of students who have had access to technology (specifically computers) and those who have not. As such, the following responses in terms of computer anxiety have been recorded amongst university students (Olivier, 2017):

- *The problem that I face when using electronic gadgets is **fear**. I have that fear to say I dont know how to use thise thing. **What if something wrong happens? What am I going to do?** [3]*

- Technology **scares** me because the method am used to its writing on papers not on computers. Writing tasks and essays on papers are so easy for me because its the only way I know. [18]
- Computer based on spelling checkers gives me a huge problem and when I use it I dont use any of the mentioned I just write and submit my work because of **the computer is a nightmare of my life**. [18]
- I am **scared** to use electronical resource. Because I am from the typical township schools with no or limited technology the little one we had was only for learners who took computer as a subject. [19]
- I don't know how to use electronic writing resources, I haven't try to write it. **I am scared**. [21]
- My experience on using computers is very **scare** because the last time I wrote something was back in grade 7, 2009, and even then I had my teacher besides me always. I now have a huge problem because I dont know how to open a writing page and even the shortcuts confuse me. [38]
- **Am scared infact am dead scared** because I don't have any knowledge on what to do and how to do electronic writing. Plus **eish** {South African informal interjection acting as emotional marker} **computer is not really my thing am scared after writing everything what if I erase everthing or something happens** and have deleted all my writing after spending all the hours on the computer. [66]
- If I had to switch off something I would definitely switch off the electronic media because I am **dead scared** of it. [F5]
- I didn't know where to start and I was **confused**. I felt like I'm **failing** and this too much for me. [58]
- I do not have a computer background so in that case **I do not know** how to approach the computer or make researches. [88]
- I just get **confused** with everything I have not idea on where to start with what or what to press to start up a laptop. [127]
- I am a first-year student and I **struggle** a lot when it comes to using the computer or having to type my work. [F7]

These responses align with earlier research done in terms of interactive study guides where computer anxiety was also apparent (cf. Olivier, J., 2016). Elements, such as computer anxiety, also have an influence on how computers are perceived and how

students would behave towards them. In this regard, a model such as the Technology Acceptance Model (TAM) can explain something of the process. Chen and Tseng (2012:399) state that the TAM can be used to “explain and predict user acceptance of information systems”. According to this model, the perceived usefulness and ease of use determine the attitude towards using specific technology and ultimately, behavioural intention to use the technology and actual use.

When it comes to multimodal learning, there has been a clear trajectory towards an increase in use and blending of technologies in the educational context. However, there are still many issues regarding access and success in terms of the effective use of instructional technologies. Even in terms of the computer literacy of millennials, multimodal learning should still be regarded as an important aspect of the range of multiliteracies (cf. 6) that need to be supported.

Apart from a multimodal context in which our students have to function in, language is also a highly relevant and often politicised issue. In this regard, the wider concept of multilingualism will be addressed after which some remarks in terms of translanguaging will be made.

3. Multilanguaging

Internationally and in South Africa, the presence of multilingualism is the norm. Makalela (2018:3) notes that historically “complex linguistic systems” have been prevalent in Sub-Saharan Africa. Language is the most important vehicle for the transfer of information in any educational context. Halliday (2007:66-67) states that “[l]anguage is the main channel through which the patterns of living are transmitted to him, through which he learns to act as a member of a ‘society’ – in and through the various social groups, the family, the neighbourhood, and so on – and to adopt its ‘culture’, its modes of thought and action, its beliefs and its values”. Similarly, Ngũgĩ Wa Thiong'o (1997:15) and Prah (2018:9) also maintain that language is a carrier of culture. Language, therefore, extends in function beyond the mere transfer of the semantic content of individual words and phrases.

The reaching of open access and communal success while fostering a self-directed learning language as a variable should also be considered. In this section, the focus falls on multilingualism and translanguaging. The term *multilanguaging* is defined by Makalela (2018:5) (who also calls this a synonym of *ubuntu translanguaging*) as “instances where

speakers have acquired more than two languages simultaneously and where there is more than one language of input and output in a discourse for meaning making". Multilingualism as process-oriented term is used in this lecture to refer to the actual accommodation of multilingualism by means of translanguaging practises, for example.

3.1 Multilingualism

The term *multilingualism* can be used to refer to the multilingual language abilities of individuals or the state of having more than one language when referring to a society or a wider group (cf. Baker, 1996:4; Kemp, 2009:12). In addition, multilingualism may not necessarily require full proficiency of the languages commanded by a particular speaker and this language competency also varies in time as the language knowledge of individuals changes as their language acquisition and need to use language change (Kemp, 2009:19).

According to Crystal (1997:362), "[m]ultilingualism is the natural way of life for hundreds of millions all over the world" and Edwards (1994:209) states that "[m]ultilingualism arises and is maintained through necessity, real or perceived". Furthermore, Alexander (1995:38) makes the following observation with regard to language hierarchy in multilingual countries: "... in virtually all multilingual countries, the different languages used reflect and represent a hierarchy of dominant and dominated groups based on the inequality of power between the first-language speakers of the languages concerned". Alexander (1995:38) also adds that within the broader socio-economic strategy, improving the status of disadvantaged languages should be integral in order to reach equality and liberty in multilingual societies. Skutnabb-Kangas (1988:11) is of the opinion that prevalence of multilingualism within a society does not relate to a choice or desire to be multilingual, but could be forced upon speakers in order for them to be able to function within a particular society.

However, internationally English is a hegemonic position and the language acts a lingua franca (Cunningham, 2001:202-203; Edwards, 1994:1). This idealisation of monolingualism can be traced back, according to Makalela (2018:2-3), to the "ideology of oneness" in Europe as a response to the Mediaeval period of political instability and specifically in the African context due to colonisation. According to Phillipson (1992:47) "the dominance of English is asserted and maintained by the establishment and continuous reconstitution of structural and cultural inequalities between English and other

languages” and this in turn constitutes linguistic imperialism. Concerns regarding monolingualism can be traced back to accounts such as the biblical Tower of Babel. Prah (2018:17) notes that in the African context “the maintenance and use of the colonial language in education and social intercourse, is that it leads ultimately to one destination, the terminus of assimilation; estrangement from our African cultural character and moorings; and alienation from precisely what we need to build on”.

In a South African context – specifically in higher education – the inclusion of African languages is regarded as a critically important issue (DHET, 2015), both as a language of study but also as a medium of instruction. Despite some criticism – especially on online news media (Olivier, 2014) regarding the introduction of compulsory African language modules at universities – there has been a number of good examples where African language modules have been successfully introduced, such as:

- University of Cape Town: isiXhosa for Medical students (MBCChB) and Rehabilitation Sciences (Communication and Speech Disorders, Physiotherapy and Occupational Therapy) (UCT, 2014).
- University of KwaZulu-Natal: Compulsory isiZulu language module for all students (Olivier, 2014).
- University of KwaZulu-Natal: Development of an isiZulu glossary of nursing terminology and a compulsory isiZulu course for Health Science students at the Westville Campus (Rudwick & Parmegiani, 2013: 93-94; Turner, 2012: 29).
- University of the Witwatersrand: isiZulu courses (despite Sesotho rather than isiZulu being recognised by the university’s language policy) in the Faculty of Health Sciences with plans to extend similar courses to the Faculty of Engineering and the Department of Psychology (Masoke-Kadenge & Kadenge, 2013: 47).
- University of Limpopo: the Bachelor of Arts Contemporary English and Multilingual Studies degree is a dual-medium degree where students study in both English and Sesotho sa Leboa (Rudwick & Parmegiani, 2013: 90).
- The North-West University presents a BEd degree (Foundation Phase Education) where students are educated through the medium of Setswana by means of simultaneous interpretation (NWU, 2013).

Through a scaffolding from status planning activities, such as the extension of language courses, higher language visibility and the availability of educational resources in African languages, the usage of African languages as mediums of instruction can be facilitated.

A possible means of negotiating a multilingual context is the implementation of translanguaging.

3.2 Translanguaging

In multilingual contexts, the borders between languages and codes are difficult to discern and translanguaging often occurs (Makalela, 2013:113). García (2009:140) defines translanguaging as an “act performed by bilinguals of accessing different linguistic features or various modes of what are described as autonomous languages, in order to maximize communicative potential”. The concept of translanguaging (*trawsieithu* in Welsh) can be traced back to an approach in Wales where both Welsh and English were used in classrooms – one language was used to pose questions and another to answer (cf. Lewis *et al.*, 2012:642-643; Makalela, 2013:113-114). The discussion around translanguaging practices should also include a more inclusive approach towards language variation as for example there is a movement to acknowledge different varieties of Afrikaans and approach these varieties from a more inclusive, equal level rather than the hierarchical approach followed historically (Hendricks, 2012). The implication would, therefore, be for lecturers to use all of the codes available to them in order to negotiate language barriers in classes. This implies increased individual multilingualism and a heightened understanding of complex language situations and perceptions in this regard.

In support of translanguaging, an increased use of technology is proposed as it has been shown that computer and internet-based language accommodation can be done within educational settings (Olivier, 2011; Olivier, 2013). In this regard, where translanguaging cannot take place in classrooms, virtual spaces need to be explored further which could also imply access across university boundaries.

3.3 Multimodal learning in support of multilingualism

The use of multimodal learning can provide potential opportunities for multilingualism. From the literature the advantages are evident. Cunningham (2001:209) admits that multilingualism can and should be promoted through the use of websites in different languages. Internationally, the accommodation of different languages has become

increasingly relevant in multimodal contexts while Holmes and Gardner (2006:63) note that “eLearning educators are continuing to consider how languages and cultures, particularly minority cultures, can be enriched and supported”. From the design of multimodal learning spaces multilingualism needs to be taken into account. Holmes and Gardner (2006:64) state that “e-Learning designers and facilitators therefore need to take such factors as language competence, cultural background and learning style into account when creating and presenting the information and content for e-Learning environments they provide”.

The inclusion of more than one language in multimodal contexts has shown a positive effect, especially in terms of minority groups (Holmes & Gardner, 2006:64). In a South African context, there is also evidence of effective inclusion of African language content in multimodal contexts (cf. Dalvit *et al.*, 2005, Jantjies & Joy, 2012; Ndebele, 2018; Olivier, 2011; Olivier, 2013). In the research done by Dalvit *et al.* (2005:127), a web application was created that consisted out of a chat room, an online glossary as well as a knowledge base or newsgroup and students were allowed to choose a language to use. In this study, Dalvit *et al.* (2005:129) determined that a multilingual web-based application can help to overcome language-related learning problems and consequently, enable access to resources in more than one language. Ndebele (2018:108) showed how blogs and wikis can successfully be used to promote and contribute to the revitalisation of African languages.

With all of the aforementioned in mind, we then move to the question of access and more specifically open access. A point of departure in fostering multilinguaging would also be open educational resources where electronic resources can be provided in more than one language and where collaboration between different institutions is facilitated.

4. (Open) access

In this lecture, the concept of *access* relates to being able to be part of a higher education context and to be able to make use of its resources. It is sensible to also take note of Wally Morrow’s distinction between formal and epistemological access. Morrow (2007:2) defines *formal access* as “access to the institutions of learning, and it depends on factors such as admission rules, personal finances, and so on” while *epistemological access* “is access to knowledge” and that teaching “is the practice of enabling epistemological access”. The process of achieving access to knowledge also relates to the academic acculturation process the takes place when students enter university (Van de Poel & Gasiorek, 2012;

Van de Poel & Van Dyk, 2013) and this can also be supported by means of technology such as Facebook (Peeters & Fourie, 2016).

In addition, Morrow (2009:78) also states that epistemological access “is learning how to become a successful participant in an academic practice”. To take charge of your own learning (Morrow, 2009:78) implies, therefore, to obtain epistemological access and requires a level of self-direction (cf. 5.3). In terms of openness (cf. 4.1) and open educational resources (cf. 4.2), both formal and epistemological access must be ensured.

Access to higher education is entrenched in the Constitution (1996) and in terms of Section 29, the following is noted [emphasis added]:

(1) Everyone has the right –

(a) to a basic education, including adult basic education; and

*(b) to further education, which the state, through reasonable measures, must make progressively available and **accessible**.*

*(2) Everyone has the right to receive education in the official language or languages of their choice in public educational institutions where that education is reasonably practicable. In order to ensure the effective **access** to, and implementation of, this right, the state must consider all reasonable educational alternatives, including single medium institutions, taking into account –*

(a) equity;

(b) practicability; and

(c) the need to redress the results of past racially discriminatory laws and practices.

The first level of access, which is the focus of this section, relates to being able to have access to further education. Access in terms of language in public educational institutions (cf. 3.1) is also ensured, but under certain conditions.

A further aspect of importance is having open access (cf. 4.1). The DHET's (2017:367) drive towards open education is motivated by a number of barriers, which were identified in terms of access to educational opportunities:

- i. geographic isolation from campuses or learning centres within reasonable proximity;
- ii. lack of reliable access to digital infrastructure, adequate bandwidth, the internet and ICT;

- iii. inability to take time off from work or family obligations for structured learning;
- iv. discrimination on the basis of physical disability, gender, age, social class or race;
- v. a lack of qualifications considered necessary as requirements for admission to particular programmes;
- vi. financial constraints and an inability to meet the cost of studies; and
- vii. past experience of content-based, transmission-type pedagogy and assessment that restrict accessibility, alienate the learner or contribute to a loss of confidence.

With effective support and resources open education can – at least to a certain extent – attend to these barriers (cf. Baijnath, 2018:94). Importantly, self-directed learning (Knowles, 1975; Tredoux, 2012:9-46) should be a guiding principle in providing open access. The *Open Learning Policy Framework for Post-School Education and Training* (DHET, 2017:376, 388, 390) highlights the importance of self-directed learning. However, the reference to “self-directed learning materials and courses” is highly problematic as it is evident from literature in this regard that self-directed learning is rather a characteristic amongst students or a process (cf. Brockett & Hiemstra, 1991:24; Knowles, 1975:18; Lubbe, 2015:20; Tredoux, 2012:2-5; Van Zyl, 2016:28-29).

In the next section, the concepts of openness and open access are discussed in order to provide background to open educational resources.

4.1 Openness and open access

According to Peters *et al.* (2012:viii), *open education* refers to the openness of learning content, the means (such as software) through which content can be transmitted as well as implementation (through publication and licenses). The concept of open education is also associated with the so-called “open universities” throughout the world. An example is the Open University in the United Kingdom established in 1969 (Peters *et al.*, 2012:77, 81-82; The Open University, 2018a). The mission of this university emphasises its openness in terms of individuals, places, methods, ideas and having no formal entry requirements for most of the undergraduate courses (The Open University, 2018b). However, Butcher (2015:6) states that despite the fact that open educational resources support open learning and open education, these concepts are not exactly the same. In this regard, open educational resources (cf. 4.2) relate more to the resources themselves.

The DHET (2017:363) defines open learning as “[a]n educational approach which combines the principles of learner-centeredness, lifelong learning, flexibility of learning provision, the removal of barriers to access learning, the recognition for credit of prior learning experience, the provision of learner support, the construction of learning programmes in the expectation that learners can succeed, and the maintenance of rigorous quality assurance over the design of learning materials and support systems”. The advantages for a higher education context for such an approach is evident from this definition.

In order to support open education and open learning, the use of open educational resources is essential. Baijnath (2018:91) remarks that “[t]he poor preparedness of entrants into higher education in South Africa is a matter of serious concern to all stakeholders in the sector”. Moreover, open educational resources can play an important role in bridging the gap between schools and universities, as was demonstrated at universities in the United Kingdom and United States of America.

A clear legislative and policy framework exists for the implementation of open education with support of open initiatives, including extensive networking and cross-institutional collaboration. In this regard, the following documents would fulfil a regulatory function: *White Paper on Education and Training* (1995); *White Paper for Post-School Education and Training* (2014); *Higher Education Act* (Act No 101 of 1997); *Policy for the Provision of Distance Education in South African Universities in the Context of an Integrated Post-School System* (2014); *White Paper 3 on the Transformation of the Higher Education System* (2007); *Distance Higher Education Programmes in a Digital Era: Programme Accreditation Criteria and Good Practice Guide*; and the *White Paper on e-Education* (2004) (DHET, 2017:378-383).

Open content stands, therefore, central to open educational resources, as this is regarded as a means through which access to higher education can be widened (cf. Lane & Van Dorp, 2011). The next section deals specifically with open educational resources.

4.2 Open educational resources

Open education resources or OER are defined by the William and Flora Hewlett Foundation (2018) as “teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license

that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions". In addition, this can include: full courses, course materials, modules, textbooks, streaming videos, tests, software and any other tools, materials or techniques in support of the access to knowledge (cf. Arinto *et al.*, 2017:4-5; Baijnath, 2018:90; Butcher, 2015:5; DHET, 2017:363; Ehlers, 2013:83-84; OECD, 2007:10; ROER4D project, 2018). The term *open educational resources* was used for the first time at the 2002 UNESCO Forum on the Impact of Open Courseware for Higher Education (Butcher, 2015:23; UNESCO, 2012; UNESCO, 2017).

Creative Commons licences are used in terms of open educational resources in order to indicate authorship and possibilities in terms of reuse and modifications. The non-profit organisation, Creative Commons, provides six different licences that determine the nature of sharing, reformulation, revision and commercialisation of content (cf. Arinto *et al.*, 2017:5; Butcher, 2015:8, 47-52; Creative Commons, 2018; Ehlers, 2013:88-89; OECD, 2007:74-75).

In terms of the storage of open educational resources, online repositories are commonly used. Such repositories are often linked to a specific portal (Weller, 2010:5), which makes access to and adding of new resources easier (Marcus-Quinn & Diggins, 2013:245). Regardless of the platform, a distinction also exists between the so-called "big" and "little" open educational resources. Weller (2010:3) describes big open educational resources as high-quality resources that are developed on an institutional level with clear educational aims, presented in a uniform style as part of a focused project and usually available on a specific portal. Little open educational resources are smaller in size and usually developed by individuals at a low cost and not necessarily educators, they do not necessarily have specific educational aims and are distributed by means of third party sites (Weller, 2010:3). Interestingly, Weller (2010:7) suggests the use of a combination of both big and little open educational resources in practice.

In a South African context, there has been an increasing number of publications on open educational resources. Work has been done in terms of policy (DHET, 2017:375) and with specific focus on universities (University of Cape Town, University of Fort Hare, University of the Witwatersrand, University of the Western Cape and UNISA) and non-profit organisations (SAIDE and OER Africa) (cf. Arinto *et al.*, 2017:12; Cox & Trotter, 2017:291-

293, 338; Hodgkinson-Williams & Cox, 2015:3-4; Hodgkinson-Williams & Gray, 2009; OECD, 2007:93).

According to Oates (2009:1), most open educational resources in an African context are only available in English and African languages are seldom used in this regard even though such resources can fulfil a language revitalisation role (Oates, 2009:12). Oates (2009:5, 6) highlights, for example, the use of Afrikaans content on the Connexions repository (currently known as Openstax CNX and available at <https://cnx.org/>) while languages with more speakers are not reflected in this repository.

In educational contexts, some literacies are required to access texts (resources). This is an extension of the meaning associated to the term *text* by Halliday and Hasan (1989:10) who define this concept as “language that is functional” or “language that is doing some job in some context”. Bateman *et al.* (2017:131) note that the term *text* has been used to refer to a wider range of phenomena. However, Bateman *et al.* (2017:132) defines *text* as a “unit that is produced as a result of deploying any semiotic modes that a medium might provide in order to produce a particular and intended structuring of the material of the medium’s canvas so as to support interpretation by appeal to those semiotic modes”.

Importantly, students need to be able to “read” multimodal texts in order to be successful in higher education. This implies a communal constructivist approach and students being self-directed as well as having the necessary skills in terms of a range of multiliteracies.

5. (Communal) success

The importance of success in education is undeniable. The emphasis on throughput and graduation rates in higher education is proof of this. However, success can be understood in many ways. Nunn (2014:10) defines *success* as “broad academic success: good grades, high test scores, and other kinds of acknowledgment from teachers and classmates”. Furthermore, Frieze *et al.* (1983:13), after a review of a number of definitions of *success*, state that success is “individually defined”, “influenced by societal norms and comparisons with relevant others”, “doing well at a challenging task or a task that requires effort” or “exceeding one’s expectations and defeating rivals”. The challenge, therefore, rather centres on the means to obtain any kind of success. For this purpose, the concepts of social constructivism, communal constructivism and self-directed learning are discussed.

In terms of multimodal learning, various learning theories have informed practices – especially with regard to computer-assisted instructional models and approaches. In this regard, the “the reliance on encouragement and repetition” (Picciano, 2017:167) is associated with behaviourism. Due to the influence of cognitivism “more advanced online software evolves into adaptive and personalized learning applications that seek to integrate artificial intelligence and learning analytics into instruction” (Picciano, 2017:168). Schaaf and Mohan (2017:10) also note the increasing need for personalised and adaptive learning through blended learning. Furthermore, approaching learning as a “complex interactive social phenomenon” (Picciano, 2017:170) relates to social constructivism. In the next section, this aspect is discussed in terms of the relevance of Vygotsky and the concept of communal constructivism – as developed from social constructivism.

5.1 Social constructivism

As theoretical basis to the manner in which learning is approached in this lecture, the work of Lev Vygotsky should be considered. Vygotsky’s notion of the zone of proximal development (ZPD) implies that by means of scaffolding by the more knowledgeable other students can progress (cf. Vygotsky, 1978:84-91). Learning through social interaction is, therefore, important as it facilitates cognitive and intellectual growth (cf. Holmes & Gardner, 2006:83; Vygotsky, 1978:84-91). Vygotsky (1978:90) states an “essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers”. According to Vygotsky (1978:57), knowledge is socially constructed and then only internalised. Thus: *motho ke motho ka batho*, I am not only because you are – I learn, because we are learning. Yet, according to Freire (2017:37) the oppressed have been conditioned to regard themselves as ignorant and regard the instructor as “the one who has knowledge and to whom they should listen”. Hence, this power dynamic should also not be disregarded in a South African educational context.

Furthermore, Vygotsky (1978:88) emphasises the social nature of learning when he states that “human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them”. In terms of technology, this social nature is unique and the concept of communal constructivism is, therefore, highly relevant.

5.2 Communal constructivism

Communal constructivism, as coined by Holmes *et al.* (2001:1), can be regarded as an extension of social constructivism and *communal constructivism* can be defined as “an approach to learning in which students not only construct their own knowledge (constructivism) as a result of interacting with their environment (social constructivism), but are also actively engaged in the process of constructing knowledge **for** their learning community” [emphasis in original text]. Holmes *et al.* (2001:2) note that “Social Constructivism is defined as a process by which students make meaning, and the central role their community, through culture and language, plays in this process”. Active engagement, student-centeredness and taking charge of learning by students create a context where self-directed learning can be fostered. Similarly, Freire (2017:53) proposes that “[t]he teacher is no longer merely the-one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach”.

As stated, communal constructivism is used by Holmes and Gardner (2006:85) to be an expansion of social constructivism where “e-Learning provides the learners with the tools to create new learning for themselves and to contribute and store their new knowledge, in whatever form it is, projects, artefacts, essays and so on, in a communal knowledge base for the benefit of their community’s existing and new learners”. Similar actions and affordances are, therefore, implied in Jean Lave and Etienne Wenger’s concept of communities of practice (Wenger, 1998).

A communal constructivist approach has implications for multimodal learning and open educational resources where materials can easily be produced electronically, distributed and kept for reuse. According to Pachler (2001:20), “[n]ew technologies allow users to create and distribute their own work and become active participants in the culture creation process” and in this manner, students can become authors of open educational resources. Pachler (2001:20) also adds that this implies that learners should be taught higher order skills as well as “electronic/informatic, visual and critical media literacies”.

Even Halliday and Hasan (1989:5) state that “[l]earning is, above all, a social process; and the environment in which educational learning takes place is that of a social institution” and that “knowledge is transmitted in social contexts, through relationships, like those of the parent and child, or teacher and pupil, or classmates, that are defined in the value systems and ideology of the culture”.

This social process can be interpreted in different ways. In terms of community with regard to the inquiry model, it is evident that interaction between lecturers and students establishes a cognitive, social and teaching presence in online environments (Picciano, 2017:173). Dynamic and network-based learning is acknowledged by George Siemens' concept of connectivism (Ehlers, 2013:103, 110-111; Picciano, 2017:174).

This move towards the communal reflects changes in electronic mediums as well. Ehlers (2013:12, 23-24) notes the shift in focus since the advent of Web 2.0 to user-generated contents and the participation of users as opposed to Web 1.0 where static monodirectional information was provided. Crook (2008:9) states that Web 2.0 allows for collaboration between students and the creation of classroom communities. Different to Web 2.0, with the so-called Semantic Web or Web 3.0 processing and even understanding of data by technology is implied (Ehlers, 2013:39). The concept can be traced to Tim Berners-Lee, the W3C consortia and other researchers (cf. Mason & Rennie, 2006:104-105). According to Mason and Rennie (2006:104), the Semantic Web "extends the current, human-readable web by providing a common framework for data to be shared and reused by machines on a global scale". The implications of Web 3.0 with regard to higher education – especially in South Africa – is still to be seen.

Apart from social constructivism and communal constructivism to reach success, students need to be self-directed. In an age where knowledge and skills are dynamic – learning, unlearning and relearning (cf. Toffler, 1990) are ubiquitous. Students need to be able to take charge of their own learning and become life-long learners.

5.3 Self-directed learning

Within a context of education and work, it is required of students to be self-directed. Lane and Van Dorp (2011:9) note that open educational resources have especially been useful for students who are confident and experienced and in such a context students need, therefore, to be self-directed. To foster self-directed learning, a variety of resources should be made available when open educational resources are used (Tredoux, 2012:46).

Self-directed learning is defined by Knowles (1975:18) as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing

and implementing appropriate learning strategies and evaluating learning outcomes". In fostering self-directed learning, certain methods can be implemented, such as cooperative learning, problem-based learning and process-oriented learning (Tredoux, 2012:33). In addition, metacognition is regarded as an intrinsic part of self-directed learning (Havenga *et al.*, 2013:4). In fostering SDL it is furthermore important to contextualise learning, and therefore both culture and language should be taken into consideration.

The concept of self-directed learning also ties in with Freire's (2017:45) notion that "[k]nowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world and with each other". In this statement the ongoing process in the pursuit of knowledge is evident as is the importance of affectual influences, a sense of self-direction, relevance to and interaction with the world in which a student acts as well as collaboration. The role of affectual variables in the acquisition of literacies is evident (Olivier & Olivier, 2013).

The requirements for open access, communal success and the fostering of self-directed learning would require specific multiliteracies that need to be imbedded in higher education practice.

6. Multiliteracies

In a twentieth-century context, literacy cannot be approached as a single monodimensional concept. In this regard, Bateman *et al.* (2017:46) state that "a prerequisite of being literate in today's society is the ability to have a command of a range of diverse and complex modes of expression and their technologies, or in short, to be multi-literate". This movement ties in with the view of Graff (1991:3) that "literacy's role changes with time, place, and circumstances". Cope and Kalantzis (2000:5) state that multiliteracies supplement the concept of traditional literacy that "engages with the multiplicity of communications channels and media" as well as "with the increasing salience of cultural and linguistic diversity". The "transformative pedagogies of multiliteracies" model of Cope and Kalantzis (2009:184) is based on the model of Cazden *et al.* (1996). An awareness of the relevant multiliteracies is, therefore, required in a higher education context and must permeate the planning, instructional design, learning, teaching and assessment of modules.

According to Newfield and Stein (2000:293, 294), multiliteracies “capture and validate the diversity of people’s literacies in specific sites and have a flexibility which seeks to include rather than marginalise” and they regard multiliteracies as a “paradigm for social and cultural understandings and knowledges, and for multimodal and technologically based forms of communication”. However, in order to understand multiliteracies and specifically multiliteracies pedagogy, the concept of literacy needs to be unpacked.

6.1 Literacy

Literacy covers, according to Kress (2003:16), “any resource involved in the making of any ‘message’, whether through word or image or otherwise”. Importantly, Graff (1991:5) regards literacy as a tool and a skill. However, Kress (2003:16-17) also notes that the extension of what is understood as *literacy* has caused the term “to mean everything” and ultimately, “is likely not to mean very much at all”. Gee (2007:31) also makes the following two statements: “Literacy as ‘the ability to write and read’ situates literacy in the individual person, rather than in society. As such it obscures the multiple ways in which literacy interrelates with the workings of power.” In addition, Prah (2018:10) observes that “without literacy, the capacity for technological and scientific transformation in human societies is limited”.

Changes in terms of society and specifically technology require a new view on literacy (cf. Olivier, 2016:27-31). Gee (2007:40) states that “in our technologically driven society, literacy is changing dramatically”. Gee (2007:42-43) questions the traditional definition of literacy (being able to read or write) and states that “literacy must have something to do with being able to read something”. The concept of reading should, therefore, in this case be extended to more than just verbal content.

Furthermore, Gee (2007:45) highlights that “[l]iteracy practices are almost always fully integrated with, interwoven into, constituted part of, the very texture of wider practices that involve talk, interaction, values, and beliefs”. Similarly, Kress (2003:13) acknowledges that the “uses and forms of literacy” have been tied to various structures and systems both in public and private domains. The importance of visual literature is also evident in Kress’ (2003:15) remark that the “image is coming ever more insistently into the domain of everyday communication, as a full means of representing ideas, information and knowledge”.

Kress (2003:27) is of the opinion that a shift in emphasis from linguistics to semiotics in terms of a theoretical approach to literacy is necessary. According to Halliday and Hasan (1989:3, 4), the term *semiotics* was derived from the concept of a sign and for them it is not just the study of signs (cf. Bateman *et al.*, 2017:51) but rather the “study of sign systems – the study of meaning in its most general sense”. Furthermore, this view also relates to transformation and transduction: “transformation operates on the forms and structures within a mode, transduction accounts for the shift of ‘semiotic material’ – for want of a better word – across modes” (Kress, 2003:28). This transformation process needs to be accounted for in the multimodal learning context.

In terms of semiotics, two approaches can be identified: that of Ferdinand de Saussure where “the sign is taken to be an arbitrary combination of form and meaning, of signifier and signified, a combination which is sustained by the force of social convention” (Kress, 2003:31) and Charles Sanders Peirce’s approach where “the focus is less on the internal constitution of the sign than on the uses of the sign by readers/users, and on the relation of the sign to that which it represents”. Kress *et al.* (2001:27) state that “[s]ocial semiotics informs our understanding of the process of learning as a dynamic process of sign-making”. However, Kress (2003:32) rejects the arbitrariness of signs and states “that signs are always meaningful conjunctions of signifiers and signifieds; it means that we can look at the signifiers and make hypotheses about what they might be signifying in any one instance, because we know that the form chosen was the most apt expression of that which was to be signified” (Kress, 2003:34). It is also important to consider that signs “exist in the wide variety of material forms which a culture (or a group within a culture) decides are to be used in the representation of the meanings of that culture” (Kress *et al.*, 2001:2). These culturally-marked signs must be understood by lecturers and effectively used in learning settings. The interpretation of signs should also be considered carefully in a South African context and even in terms of a greater need for decolonized education.

When it comes to multiliteracies pedagogy, the challenge would be how social semiotics should be facilitated in actual classroom situations.

6.2 Multiliteracies pedagogy

Kress (2003:27) states that “language alone cannot give us access to the meaning of the multimodally constituted message; language and literacy now have to be seen as partial bearers of meaning only”. The range options from a multimodal repertoire must be

imbedded in a multiliteracies pedagogy. Unfortunately, there is also no generic approach to the multimodal enrichment of all modules and courses. Additional research is, therefore, necessary in terms of the abilities and needs of students, the abilities and needs of lecturers and the needs from the work place, industry and South African society.

An additional challenge is to determine how the creators and users of multimodal content know how to write (create) or read (interpret) by making use of the *spatial contiguity principle*, for example. Related content should, therefore, be placed together. When the *signalling principle* is used, cues should be provided to help with the interpretation of such content (cf. Bateman *et al.*, 2017:285). Computer literacy is also clearly a problem amongst some of our students (Esterhuizen *et al.*, 2012:87; Olivier, J., 2016, 2018; Pool, 2014:200).

As Gee (2007:32) observed in terms of the United States in the 1990s, South Africa is also experiencing a “literacy crisis”, but in South Africa the crisis is “masking deeper and more complex social problems”. As such, it is important to consider how multiliteracies can support student open access and communal success in the context of multimodaling and multilanguaging and ultimately, how self-directed learning can be fostered.

7. Multiliteracies in support of self-directed learning

If the fostering of self-directed learning is a goal in terms of multiliteracies, then specific key literacies must be identified. In terms of the definition provided by Knowles (1975:18), this implies that students have self-efficacy (to take initiative and be able to choose and implement appropriate learning strategies and evaluate learning outcomes); have appropriate social and communication skills (to work with or without the help of others and able to identify human resources); have metacognitive skills (to diagnose their learning needs, to formulate learning goals); have information and computer literacy skills (to identify material resources for learning); and reflective skills to determine whether learning goals have been achieved.

In terms of gamification, self-direction also comes into play. According to Schaaf and Mohan (2017:22), player (student) autonomy is important in this context where “players have a great deal of power to make decisions and succeed or fail by their own choices” and “[w]ith gamification, educators look for ways of placing the decisions in learners’ hands”. By definition, gamification implies multimodality and requires multiliteracies.

It is important to also draw from what Schaaf and Mohan (2017:93-100) call the nine I's of modern learning, which can be considered as essential 21st century skills: intra-personal skills; interpersonal skills; independent problem-solving skills; interdependent collaboration skills; information investigation skills; information communication skills; imagination creativity skills; innovation creativity skills; and Internet citizenship skills. These skills also align with what would be required from self-directed students.

In order to understand the position of self-directed learning in terms of open access and communal success in the context of multimodaling and multilanguaging Figure 2 provides a schematic elucidation.

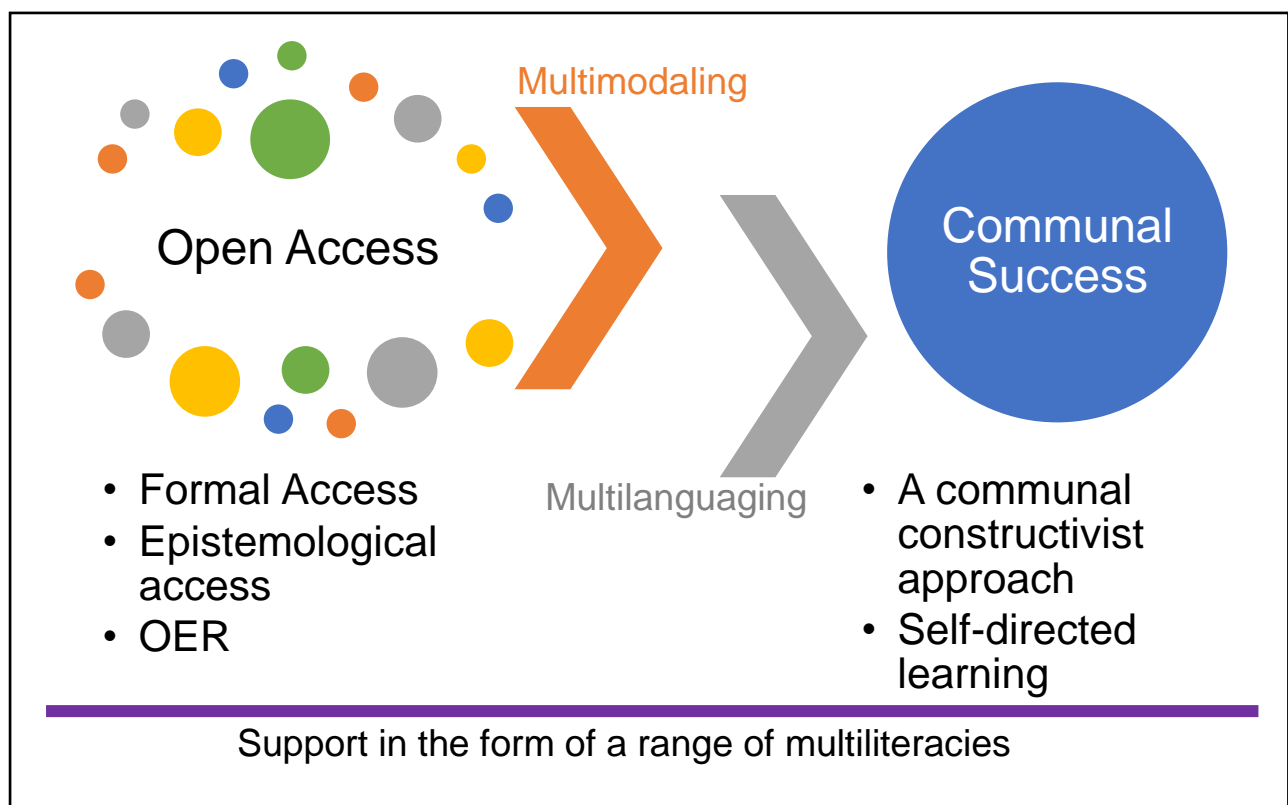


Figure 2: Open access and communal success in the context of multimodaling and multilanguaging to support self-directed learning

Apart from essential support for reading and writing in order to reach open access and communal success in the context of multimodaling and multilanguaging and ultimately fostering self-directed learning, the following literacies should also be considered: negotiation literacy, body language and nonverbal literacy, collaboration literacy, computer literacy, information literacy, visual literacy, animation literacy, narrative literacy, social

media literacy, metacognitive literacy, multilingual literacy, multicultural literacy, translanguaging literacy and resource selection literacy.

These literacies would imply interdisciplinary and collaborative initiatives to allow for adequate support and opportunities in learning contexts.

8. Conclusion

In conclusion, it is evident that multiliteracies can support student open access and communal success in the context of multimodaling and multilanguaging and ultimately, to foster self-directed learning.

Furthermore, there are concrete steps that can be taken support student open access and communal success in the context of multimodaling and multilanguaging and ultimately in the process foster self-directed:

- Lecturers should be made aware of the semiotic and instructional design principles behind the use of different modes in communication and instruction.
- Technology should be integrated in instruction with sufficient support for lecturers and students.
- The blending of approaches, delivery mediums and technologies should be planned and based on research.
- Different levels of the digital and literacy divides should be considered in terms of a diverse student population.
- Lecturers and students perceptions about languages and language varieties should be adapted to be more inclusive and tolerant – this can be done by means of language attitude planning.
- Lecturers should be empowered to utilise and expand on the language codes available to them in order to facilitate multilanguaging in classrooms.
- The use of multilanguaging by students should actively be encouraged especially by means of technology.
- Bilingual and pivot subtitles (cf. Olivier, 2003:102-104) should be used in instructional videos in order to promote multilingualism.
- Open educational resources should be localized or created in order to support the multimodal and multilingual needs of specific students.
- Research should be done to establish which multiliteracies are necessary to ensure epistemological access.

- Students should be empowered by means of technology and with the relevant multiliteracies in order to learn collaboratively in a communal constructivist manner.

Concerns regarding literacy levels are clear and the overemphasis on reading and writing (versus other skills) is evident. Clearly, the need for an extension of multimodal learning in higher education is great. Furthermore, multimodality in terms of communication, learning/teaching and delivery must be accounted for and accommodated. In terms of literature on multimodality and multiliteracies, a non-compartmentalised view of modes and modalities is necessary in educational contexts. In this regard, instruction technology can play an increasingly important role.

The blending of approaches, delivery mediums or technologies will increasingly become the norm and lecturers and students should, therefore, be able to function effectively within the different modalities. However, a clear digital divide in South Africa poses problems to the effective implementation of multimodal learning. Support in terms of computer literacy and even extreme cases of computer anxiety must be interrogated and not hidden under generalisations regarding the so-called millennials or the fashionable generation Z (Geck, 2006).

When considering multimodal learning and multiliteracies, the multilingual nature of students at universities cannot be ignored. As such, a move towards multilingualism by means of technology is proposed. There is ample evidence of successful integrations of African languages in higher education and through technology multilingualism can be achieved. As previously mentioned (cf. 3.1), despite some success in the compulsory use of African languages at universities (the use of isiZulu at the University of KwaZulu-Natal), there still seems to be some negativity – especially in terms of recent comments made by individuals on online media platforms (Olivier, 2014). In this regard, it can be noted that “[t]his negativity against certain languages and the introduction thereof at universities can be countered by means of language attitude planning ... and greater exposure to African languages in educational settings” (Olivier, 2014:495). Verhoef (1998:28) considers language attitude planning as operationalisation of the language status planning process. The North-West University Statute (NWU, 2017:93) clearly states that the university’s language policy “must be flexible and functional, and must redress language imbalances of the past and promote multilingualism, access, integration and a sense of belonging”.

In terms of access, the concept of open education is highly relevant in a South African context. Open educational resources can provide many possibilities in terms of both formal and epistemological access to a range of resources. In March 2018, the North-West University Senate approved an OER Declaration committing the institution to the promotion, implementation, creation, reuse, revision, remixing, redistribution and retention of OER within an open licensing framework. OER will, therefore, be of increasing importance in all disciplines at the North-West University. A shift is necessary in universities from knowledge production to “an orientation about quality and to organize certification and assessment” (Ehlers, 2013:1).

Success in higher education can be reached through a communal constructivist approach where collaboration is facilitated through multimodal support. In addition, success would imply that students are self-directed and possess relevant multiliteracies. It is evident that the discussion on what literacy entails should be ongoing and be revised and repurposed as required during learning, unlearning and relearning.

The hope would be that the proposed actions are attempted not as Bruegel’s Vienna painting that may never be completed but rather the Rotterdam painting (cf. Figure 3), which according to Mansbach (1982:49) is a “visual metaphor of mankind in a state of grace” in which “Babel has been remedied”. Or the construction of a lasting ziggurat of student open access and communal success.



Figure 3: Rotterdam ‘The Tower of Babel’ by Pieter Bruegel the Elder (1563b)

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