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Literacy Practice, Pedagogy, and the 'Digital University'

Robin Goodfellow, The Open University

Abstract

This paper applies a critical social literacy perspective to the idea that contemporary pedagogies of the 'digital university' are involved in transforming not only the writing practices of the university but also its larger social role. It argues that the values of written scholarship that have underpinned the university's contribution to the public good in the modern age are still important to its pedagogy in current times of increased focus on its contribution to private benefit. It draws on examples from classroom practice in UK universities to suggest that pedagogy is becoming increasingly polarised between academic writing that attempts to inscribe 'truth' values, and digital knowledge work that is focused on 'use' values. It discusses the nature of academic literacy practices in the digital university and argues that teachers and academics who wish to ensure that the traditional value of university scholarship to the public good is preserved in the emerging 'digital university', need to do so by developing their own practices of digital scholarship.

Introduction – literacy and cultural capital in the university

The concept of 'literacy practice' (Barton et al 2000; Street 2002, Goodfellow & Lea 2007) encompasses a view of literacy that focuses on the text-making behaviours of communities and societies, and the role these texts and behaviours have in organising social relations, including power relations, social values, and the distribution of cultural capital. Such a view is not blind to the dimension of

competence – the ability of individuals to manipulate the symbols and systems with which texts are built and exchanged – but it is more concerned with the bigger picture: how texts themselves, which can employ images, sounds, and other ways of signaling meaning as well as writing, become actors in a social game. In Education this 'practice turn' (Schatzki 2001) in thinking about literacy has the important effect of bringing *all* the text-making participants in the field into the analytical frame – the teachers, course writers, librarians, website designers etc. – as well as the learners who have conventionally borne the brunt of our well-meaning scrutiny.

Conventionally, text-making in higher education employs written language as its dominant mode. Cultural capital (status and resources related to socially-valued knowledge) is largely realised through what is written and subsequently legitimised as appropriately academic. As Bourdieu has it, 'academic qualifications are to cultural capital what money is to economic capital' (Bourdieu 1977:187) and academic qualifications are still almost exclusively the product of written literacy practices.

However, contemporary literacy practices *outside* the academy are clearly shifting from the page to the screen as the primary locus of text-making (Snyder 1998; Kress 2003), and with this shift comes a challenge to the dominance in general literacy of traditional cultural practices of reading and writing. The challenge resides not only in the possibility to create texts that digitally blend audio and visual modes with the written, but also in the partial deconstruction of authorial and reader roles that emerges through the mutability and reproducibility of those digital texts (see Kress

2003: 172-173). This challenge to traditional means of creating and distributing cultural capital is now being brought into the university as a consequence of the increasing use of digital technologies in almost all areas of institutional activity.

What will be the effect of such changes in its literacy practices on the social role of the university of the digital age? Some suggest that these changes will be transformational, turning universities from being self-appointed arbiters of cultural knowledge into a service industry meeting societal, organisational and individual needs (Haythornthwaite 2013; Littlejohn et al 2013). In this paper I argue for another view. I trace the connection between the epistemological and ethical 'truth values' of traditional scholarship, the university's public mission, and the continuing dominance of writing-based pedagogies. I discuss the apparent shift in the contemporary university's social priorities, from public good to private benefit and from 'truth values' to 'use values', and make a connection between this shift and new pedagogical discourses of the digital, such as the 'digital native' and 'digital literacy'. I illustrate some of the contradictions that are emerging between digital and scholarly literacy practices in university classrooms[i], with examples of different text-making activities of learners and their teachers. Finally I raise the question how university teachers and academics can transform their own scholarly literacy practices in the emerging 'digital' university whilst remaining committed to the kind of public good that universities of the modern age have traditionally stood for.

Scholarship, writing, and the public mission of the university

The public mission of the university is its historical purpose 'to educate citizens in general, to share knowledge, to distribute it as widely as possible, and to produce it in accord with publicly articulated purposes (as well as on the assumption of eventual public benefit)' (Calhoun 2006: 19). Public benefit, or public good, can be envisaged in different ways: as a 'sphere' for rational debate and the emergence of public intellectuals (Marginson 2011; Walt 2011); as the fostering of democratic citizenship through critical judgement (Barney 2006) or the growth of general 'civic intelligence' (Brown 1997); as the holding of authority to account on matters of public interest (Giroux 2006:71). Implicit in all these conceptualisations is the role of the university not only to produce knowledge on its own account, but also to preserve a critical distance from other fields of the production of public goods in order to maintain an ethical stance on the value of knowledge as 'truth'. This implies the independence of the academy from the 'market, the polity, and fashion' (Benkler 2008:55); and the 'perpetuation of academic forms of recognition and prestige as a valued alternative to economic gain' (Naidoo 2005: 29).

The university has traditionally sought to achieve this contribution to the public good through a distinctive methodological orientation to knowledge that is characteristic of academic scholarship. Whilst the actual processes of doing scholarly work may vary between disciplines and institutions there is a consensus that scholarship values critical reflection, the systematic and cumulative aggregation of information and understanding, distinct modes of operation relating to evidence and the warranting of its reliability, and the ethic of enquiry as a primary motivation (Andresen 2000, Cowan et al 2008, Courant 2008). Traditionally, these characteristics have

distinguished the construction of academic scholarly knowledge from other kinds of knowledge production (factual knowledge, practical knowledge, common-sense, morality, the 'wisdom of crowds'). As some scholars (Boyer 1990, Andresen 2000) have observed, there is a strong normative dimension to the idea of scholarship - historically it has been highly valued by society for its ethics as well as for its outputs.

Historically, scholarship has also been conducted through oral rhetorical practice, but since the shift from oral to written literacy became institutionalised in western universities from the beginning of the 19th century (Stray 2001:47) scholarly ethical and epistemological values have come to be expressed, and taught, primarily through writing. Academic writing pedagogies in almost all subject areas emphasise critical thinking, argumentation, objectivity, and rigour in attribution, these being seen as essential to both the cultural socialisation of an educated public, and the academic and disciplinary socialisation of new scholars (see Davidson and Tomic 1999 on the North American composition movement, and Northedge 2003, Elander et al 2006, and Hyland 2009 on UK pedagogical practices of academic writing).

With the development of more critical pedagogical perspectives during the past two decades, some scholars and practitioners have extended the focus of 'academic literacy' to the voices of student writers themselves, and the processes by which they, and particularly the socially marginalised, can engage with dominant cultural practices to empower themselves and their communities (Lu 1994, Lea and Street 1998, Jones et al 1999, Lillis 2001, Moran 2003). These approaches, however, have

not yet been absorbed into the mainstream of academic literacy practices in western higher education institutions. Conventional scholarly writing (and reading) oriented to critical judgement and the truth value of knowledge continues to dominate much teaching and most assessment practice, even in contexts where new subjects and new means of communication are reshaping the curriculum.

Private benefit and the digital discourses of higher education

Universities have a significant social role to play in the production of private goods and benefits, such as individuals' qualifications, professional careers, corporate knowledge and innovation, prestige differentials, competitiveness, profits, intellectual property (Calhoun op. cit.:8; Marginson 2011). Although there is a potential synergy between public and private benefit, there has been a significant shift in emphasis in higher education policy globally, over the past 20 years, towards the private at the expense of the public. Many authors have attributed this to the spread of neoliberal economics emphasising locally-generated and 'useful' knowledge and the markets for it (Margisson 2011; Naidoo 2005; Curie 2004). Much of the focus of higher education policy is now couched in terms of the economic interest of employers and future employees, and much of its pedagogy is now bound up with the development of new techniques for the management of learning across the boundaries of institutional, personal, and corporate contexts and locations (Goodfellow & Lea 2007).

Digital technologies have been centrally implicated in this shift. With the emergence of the 'new communications order' (Kress & van Leeuwen 1996), new discourses of

the digital in higher education, such as the rhetoric of 'digital natives' (Prensky 2001) and 'survival in a digital world' (Bean 2010), have explicitly constructed the role of higher education in terms of its private benefit to individuals – the personal development of people who have been brought up in conditions of digital immersion, or the survival of those who haven't. Various discourses of 'digital literacy' (Johnson 2006, Gillen and Barton 2010, JISC 2011) address the agency of the individual student as 'designer' of multimodal rhetorical action (Kress 2003: 147; Bearne 2005: 294), or as contributor to participatory digital cultures (Jenkins et al. 2005), or as the locus of new working practices and new forms of socialisation and expertise (Littlejohn et al 2012). Digital literacy in these views not only transforms communicative practices, it seeks to transform epistemologies too, from the conventional truth-oriented values of disciplinary scholarship: commitment to evidence, methods, codes of practice, critique via academic writing; to use-oriented values of internet communities: different ways of being 'in the know', co-existing multiple versions, group ownership, non-linear and multimodal texts (Beetham 2009).

Digital literacy in higher education thus helps to construct a new 'vision' for the university which frames its mission in terms of private benefit: individuals' skills and competencies, corporate knowledge acquisition, national economic competitiveness, rather than public goods such as universal rationality, engaged citizenry, and shared knowledge. The digital university thus becomes a mechanism for the transformation of academic (truth) into material (use) values. As Lea puts it: 'the traditional academic work of the university, the articulation of disciplinary

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knowledge and particular forms of engagement in texts and practices in the advancement of knowledge appear to have been swept away' (Lea 2013).

Such a transformation goes beyond changes in the literacy practices of the institution to impact on the role of higher education as a social field in its own right. As Calhoun observes: 'part of what makes higher education a social field is a common investment in authoritative knowledge – if a field has no authoritative knowledge it has nothing to share' (Calhoun 2006: 23). The implications for pedagogy are significant, as the philosophy of teaching has both knowledge and values at its core. It is important to consider whether such transformation is evident in the actual text-making practices of university classrooms using digital technologies, and whether transformation from one to the other is the only relationship possible between these two sets of values, or whether they can co-exist in productive synergy.

Digital learning practices and writing-based pedagogies

The examples discussed here illustrate some of the ways in which writing-based pedagogies interact with digital learning practices, as observed in a UK research project from 2008-2009 entitled 'Digital Literacies in Higher Education' (DLiHE). This project explored the digital study practices of students in three UK universities. The research approach drew on an 'academic literacies' perspective on communication in online and hypertextual environments (Lea 2007, Goodfellow 2004; Crook 2005) which seeks to characterise students' study practices in terms of their own understanding of the meanings made through these practices. Full accounts of methodology and findings from this project are given in the project

report (ESRC 2009) and in publications by Lea and Jones (Lea and Jones 2010, Jones and Lea 2008).

The project conducted a series of observations and interviews with 33 students over a 6-month period at three UK universities, each considered typical of a particular kind of higher education institution in the UK: a traditional research-led university, a new ex-polytechnic university, and a further education college offering higher degrees. The students involved were studying a range of courses including academic (single-subject and interdisciplinary courses), and professional and vocational courses.

The Use Value of digital texts

One finding of the project was that the universities' deployment of digital texts implicitly, but not explicitly, combined literacy practices drawn from internet information cultures with those that embed values of academic scholarship. For example, the home page of the website of the new university was designed not only to deliver the university's services, but also to actively engage students as users of these services through 'personalised' information structures (*My* [University name], *My Announcements, My Calendar, My Courses)* and repeated invitations to interact with the site by participating in activities such as the national student survey (*Make your opinion count).* A couple of clicks into the site via the university library's resources page, however, and the student is confronted with the interface of the Science Direct academic database. This is of more use for actual study purposes but considerably less usable for the students, as it requires additional user validation, and

presents its functions with little explanation – just a search box requesting keywords from abstracts, journal titles, volume and issue numbers etc., and links to services providing PDF documents, citation counts, export facilities and other features of scholarly information management. The texts of two very different practice communities, the university's website design team and its librarians, thus share the same screen on the user's desktop and the same generic features of the browsers that display them. But they represent quite different approaches to the retrieval of information - the digital culture values of quick and easy access to the information relevant to *you*, and the scholarly practice of finding objectively relevant information through the systematic exploration of categories.

The contrast of scholarly information practice with the values of website usability perhaps helped to shape the strategic approach that some students took to meeting pedagogical requirements, as their reflection showed:

> … with this, Google Scholar because I've done it so many times with my laptop I just put 'S' and Scholar comes up, down arrow, you're in to Google Scholar.. with [library database] you've got to put in your password then you've got to say [subject] and then you've to pick [topic] and then you've got to pick the database you want to search in and then you put your key words in so there's lots of stages. But I will say we use it when Google Scholar doesn't come up with anything… [Student A – traditional university – Speech Sciences]

> I made my research from Google so as long as I had like enough information I would finish my research, so I was just taking all the links that were available through Google, so some of them were not necessary, some of them were not trustworthy like Wikipedia. That's what

I've heard here that we shouldn't trust it, but well I was looking for some graphs, so I was looking as long as I found it basically. (Student B – new university – business management)

The biggest reason I use the Times Online is because mostly the Times Online articles have also been published in the Times, and so it means that you can reference it to a newspaper, not just to a website, which means that you have multiple media in your references which obviously is a part of the marking criteria for some projects (Student C – further education college – IT for business)

Three positions on the relation of 'truth' to 'use' are illustrated here. Student A is quite explicit about the greater speed and usability of Google Scholar over the library's journals database and apparently content to be restricted to online sources as long as the results themselves are usable. Other students also commented on the greater usability of Google Scholar for finding specific keywords within texts, although not on its capacity to deliver entire texts, which would be inferior to the journals database. The question of whether Google's coverage of topics is as comprehensive as the journals database was not commented on, other than in Student A's acknowledgement that the database might be used where Scholar failed. Student B's decision between Google and Wikipedia is apparently informed by considerations of both usability and truth (or trustworthiness), with the research being concluded as soon as there was 'enough' information, but some of the information being discarded for reasons of trust that are not explicated. Other students also commented on Wikipedia from the point of view of its supposed unreliability, and evidence from course notes indicates that this was a consideration prompted by teachers. Student C's construction of her use of the Times online in the

quote above is strategically oriented to a pedagogical requirement to include multiple media in references, rather than to considerations of either usability or truth. Many other students expressed similar concerns to meet course or teacher requirements in their use of digital resources, leading Lea & Jones to conclude that:

> ..what remains constant is students' reliance on the authority of the institution, which goes well beyond course reading lists to embrace a range of online resources, such as PowerPoint slides, lecture notes accessed via the virtual learning environment, emails from tutors, relevant websites and commercial documents and reports. (Lea and Jones 2010: p.14)

Lea (2009) describes the range of texts and practices that students engaged with through the web as of 'extraordinary' breadth (p.18) compared with the articles and textbooks of the more conventional university course reading lists. All three institutions asserted the importance of authority and reliability in the digital texts that students drew on, and attempted to foster scholarly practices through the 'rules' of citation and attribution and the avoidance of plagiarism (Lea and Jones 2010). But whilst students generally attempted to comply with these rules and apply them to their use of texts accessed online, they often did so with little understanding of 'historical, long-standing academic practices around using sources' (Lea and Jones 2010:12) or the 'truth' values embedded in the practices.

The Truth Value of Scholarly texts

Institutionally mandated digital study practices (use of the internet as a resource, use of library electronic databases, use of course management systems, use of

presentation software), co-existed with conventional academic literacy practices

embedded by teachers and course writers into the curriculum and pedagogy through

course guides, assignment rubrics, lectures and lecture notes, reading lists, and

marking criteria. In assignment rubrics, for example, values of academic written

scholarship dominate. Table 1 shows this in extracts from course guides, assignment

guides, and assessment criteria from a range of courses across the three institutions.

Table 1 : Extracts from course documentation showing focus on critique, argument and analysis

University and subject area	Type of document	Extract from document
Traditional university Archeology (1)	Course guide objectives: Learning outcomes:	*Be able to critically evaluate approaches taken in the analysis and interpretation of... [concept]* *- Observation and critical reflection skills*
Traditional university Archeology (2)	Course guide: objectives learning outcomes:	*Recognise the importance of critical and integrated approaches to the use of... [resource]* *- Understanding and critical awareness* *- Written and oral skills in analysis and presentation.*
Traditional university Academic writing	Course guide objectives: Learning outcomes:	*engage with relevant theoretical and critical frameworks* *- develop capacity to construct and sustain academic arguments* *- critique and acknowledge other texts*
'New' university Tourism	Course guide aims: Learning outcomes: Assessment criteria:	*To develop a critical analytic approach of social issues* *To develop a critical understanding of tourism within a global context* *Discuss critically social issues from a social scientific perspective* *- all work should be logically structured and clearly argued* *- understanding and use of literature, clarity of sources and interpretation of evidence* *- conclusions should be clear and supported by the argument and evidence*
'New' university Business management	Assignment guide marking criteria:	*- demonstration of your understanding of the critical nature of the ethical issues involved* *- independent research insight* *- clarity, logic flow and scholarship*
'New' university Professional development	Module groupwork assignment requirements:	*a central idea, theme or area of discussion.* *a set of products which capture and illustrate the central argument.* *the documentation to show the processes you have gone through to produce your products*
Degree-awarding college Graphic design	Course guide assessment criteria:	*- make a critical analysis of current [practice]* *- explain the factors affecting [practice]* *- use critical reflection to evaluate own work and justify valid conclusions*
Degree-awarding college	Assessment criteria	*Identify and explain [procedure]* *Good = Good, intelligent discussion and reasoning behind..*

| Computer networking | | *Provide an overview of [procedure]* |
| | | *Excellent = An excellent and thorough analysis of..* |

In these extracts the concepts of critique, analysis, reasoning and argument underpin the criteria for evaluation of student work in all the subject areas including graphic design and information technology. Whilst assignment tasks did reflect subject-specific differences in their orientation to learning, varieties of text mode, and the skills of group participation and collaboration, the demonstration of learning outcomes was realised primarily as authored writing through written examination questions, assessed essays, written summaries, written reflections, introductions, critical appraisals, evaluations, written arguments etc. These practices testify to an enduring conceptualisation of desired learning outcomes as fundamentally aligned with the values of written scholarship, even while wider pedagogical practices encompass a much bigger range of text-making modes and opportunities for student development.

Truth and Use in Teachers' presentation texts

The finding that university students in the digital age are still primarily motivated by the requirements of their teachers and courses is not particularly surprising. But the ways in which literacy practices reflect this power relation are not always as obvious as in some of the examples above. The introduction of digital presentation media into lectures and the delivery of course materials, for example, alters teachers' and students' relations to both the course content, which loses some of the fixity it has when it is in purely written form, and to each other. Students' reflections on the use of Powerpoint by teachers to deliver lecture notes demonstrate this.

I need to take notes even though I know a couple of hours later maybe the next day…she

will put it on the [virtual learning environment] and I can print it out… I know these are the

notes taken from the handouts, from the PowerPoint which handouts I can printout later from

the [virtual learning environment]. I am not sure whether it is helpful or not, some tutors give

you the lectures before and you make notes within that… (Student D – new university –

Tourism)

When he starts his lecture he's like, if you've got a question about something note the

number of the PowerPoint slide down on your notes so you can ask me about a specific.

(Student E – traditional university – Archeology)

In a situation we're in, going to lectures that kind of stuff we get a lot of powerpoints, and a

lot of people seem not to realise that if you're studying at degree level you possess the ability

to read, so actually if they write stuff on a slide, and then print you off a copy, and then read

those things to you, actually you're not learning a great deal by their participation, and the

idea of a slide on a powerpoint presentation is not to use it as the speakers notes section, its

to use it as a slide. (Student F – Degree awarding college – ICT)

It takes lecturers ages to figure out our silly daft electronic system it seems like it's some of

the rooms are touch screen, some of them are buttons next to the screen. It never works for

them so and like we had a lady in today, you go to lecture with OHP's (Student G –

traditional university – Archeology)

Some of these references raised issues that were to do with how students could best

use the different versions of the lecture notes and slides that teachers provided, some

in printed handout form, some as digital text (e.g. powerpoint slides). The students

questioned the need to take their own notes, and the timing of the lecturers'

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publishing of their digital versions (Students D & E). In some other cases lecture notes existed in several versions including digitally annotated versions produced by the students themselves. Some students were critical of teachers' powerpoint practices (Students F & G), perhaps because these were skills they had developed themselves in external professional contexts and their focus was on the use value of the medium rather than the truth value of the presentation's content.

Underlying these comments there is perhaps a more fundamental question concerning the way teachers' digital practices can actually disrupt the transmission model of learning familiar to the students. The use value to the students of information provided to help them produce their assignments satisfactorily is sometimes undermined by the plasticity of powerpoint slides and notes and the variety in pedagogical practice that they afford. Teachers, on the other hand, as they develop their facility with digital media, may be coming to view their oral and digital presentations not simply as a pedagogical techniques but as an expression of their subject scholarship. A dialogue amongst teachers and students over the way the technologies are used would offer the opportunity, not only to resolve problems but also to highlight more complex aspects of the relation between scholarly and more general digital practices and purposes.

These examples are small-scale illustrations of pedagogical issues that have begun to arise in higher education teaching and learning, as a result of the interaction of traditional scholarly literacies with digitally-mediated study practices. They illustrate the challenges facing both students and teachers in combining truth values

inscribed in practices of analysis, argument and critique, with use values of convenience, personalisation, and multimodality. They also suggest that a preoccupation with the more conventional academic values dominates the form of the texts that are produced by teachers at the start of the pedagogical process, and those produced by students at the end of it. This is the pedagogical 'sandwich' that Lea refers to, in which attention gets concentrated on the match between the assignment rubric and the finished assignment, at the expense of the more interesting and generative part, the 'filling', or the processes of meaning making as developed by the student (Lea 2013:12). A shift in pedagogical focus from the assignment as the end product towards making the textual design processes involved in constructing it more visible and open to critique would help both students and teachers to relate academic and digital practice elements more synergistically. It would also bring the expert-novice relation on which assessment is traditionally based into a new configuration, as quality criteria for evaluating the literacy practices in which all parties were involved would need to be continually reinterpreted. This might well produce a transformation in text-making in the classroom. But it might do so without necessarily displacing the truth values of scholarship as the primary purpose of the teaching process.

Conclusion – the 'digital university'

Literacy practices are the locus of pedagogical action in the university, as textual knowledge is its principal medium for the construction of cultural capital which contributes to both public good and private benefit. Writing practices underlie the greatest part of text making at the present time, following a tradition that associates

the truth values of written scholarship with education for the public good. Digital design practices, however, are an important coming means of expressing individual agency and the use values of education for private benefit.

In the classrooms of contemporary universities as they become increasingly 'digital', cultural capital is being constructed through a proliferation of hybrid writing-digital practices, sometimes oriented to use and usability, other times to scholarly truth. Teachers and learners alike are having to negotiate the values inscribed in assignment and assessment practices around texts which are made increasingly malleable by the affordances of digital media. Students in particular are being called upon to engage constructively in contexts where the contingencies of digital action and the ideals of scholarship jostle uncomfortably together. Belief in the role of written scholarship in fostering an educated public capable of critical independent judgement is still strong amongst academics, but it is being challenged by the advocates of collaborative and participatory digital action, because of its growing importance for individual social competence, and its potential to generate new orientations to epistemology and the authorities of expertise and consensus.

Currently there are few institutions that explicitly identify themselves as 'digital universities'. Those that do so have identities and reputations built upon delivering a university education that is wholly or predominantly digitally-mediated. These universities have transformed themselves deliberately - it is their 'unique selling point'. The digital, however, plays its role in institutional change indirectly too, through internal re-organisations that accompany the implementation of new

technical systems, and rhetorically through the communication of technological visions for the university of the future. Many otherwise conventional face-to-face institutions use digital technologies to organise research, teaching and administration and other functions such as courseware development, library services, exam marking etc. These universities do not necessarily embrace the idea of a digital transformation in their institutional nature or their social role. Nevertheless, new digital tools and systems bring new practices and new kinds of social relations involving the reallocation of resources, the relocation of workplaces, and the re-assessment of professional identities (see McAvinia 2012, for example, for a discussion of such reorganisations in Irish universities introducing virtual learning environments). Changes in practice and relations, material and pragmatic at one level, are textual and discursive at another. They are implemented in consultative documents which circulate around increasingly-widening groups of employees and other participants; in designs of interfaces to websites and tools intended to enable new working practices; in emails between students and teachers about on-going study practices; in demonstrations and accounts of 'good practice' in formal and informal literature addressed to teachers. Changes in literacy practice both reflect and enact changes in wider pedagogical and social relations in the university and its social setting, and as such are both a cause and effect of transformation.

The pedagogical challenge for contemporary universities, whether explicitly labelled as 'digital' or not, is in the extent to which they can combine a commitment to a public good based on truth values as embedded in the practices of written scholarship, with the realisation of use values as expressed through the discourses of

digital literacy. This challenge has to be taken up if teachers and academics wish to maintain a commitment to wider truth values in the current climate of instrumentality and the dominance of rhetorics of transformation that pay scant attention to the larger mission of the institution. How academics and other scholars learn to read and write with new media, and disseminate their practices through pedagogical action, will play a major role in the future social reproduction of the university of the digital age.

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[i] By 'classroom' in this discussion I mean the broad set of conditions that creates the relations of 'teacher', 'student' etc. in the context of particular activities and conditions of enrolment, rather than any specific location, physical or virtual, in which these activities take place.