

Academetrone, automaton, phantom: uncanny digital pedagogies

Sian Bayne

Higher and Community Education

School of Education

The University of Edinburgh

Paterson's Land

Holyrood Road

Edinburgh EH8 8AQ

Scotland, UK

sian.bayne@ed.ac.uk

(0)131 651 6337

Abstract

This paper explores the possibility of an uncanny digital pedagogy. Drawing on theories of the uncanny from psychoanalysis, cultural studies and educational philosophy, it considers how being online defamiliarises teaching, asking us to question and consider anew established academic practices and conventions. It touches on recent thinking on higher education as troublesome, anxiety-inducing and 'strange', viewing online learning and teaching practices through the lens of an uncanny which is productively disruptive in its challenging of the 'certainties' of place, body and text. Uncanny pedagogies are seen as a generative way of working with the new ontologies of the digital.

Introduction

Fiction, dreaming, machining, and hauntology. Where do these belong, if they belong at all, in the House of Learning? (Kochhar-Lindgren 2009: 8)

The university, its inhabitants and the project of teaching and learning are being rendered uncanny by the workings of digital technology. Alongside calls for a greater focus on ontology within the academy (Barnett 2005, 2007) come digital interventions in academic practice which foreground the uncanny operations of technology on the formation, and re-formation, of such ontologies. The uncanny figure of the cyborg functions as 'a cipher for larger cultural debates on the nature of being' (Grenville 2001), alongside other discourses concerned with machinic mediation, penetration, fusion and transformation.

This paper is concerned with the themes of ghostliness, haunting, and the 'strange' in relation to online teaching and learning and the identities and practices of students and academics. Building on earlier work (Bayne 2008a) in which I suggest that virtual worlds might become a site for the exploration of pedagogies concerned with the ontological, I attempt here to extend this idea into other digital learning environments, by considering the operations of the digital uncanny on our notions of place, body and text. Drawing on theories of the uncanny from psychoanalysis, cultural

studies and educational philosophy I will explore, with examples, the possibility of a generative uncanny pedagogy within the context of the digital.

The uncanny is to do with a sense of creeping strangeness, a strangeness located in ontological disturbance – ‘it is a crisis of the natural, touching upon everything that one might have thought was “part of nature”: one’s own nature, human nature, the nature of reality and the world’ (Royle 2003). As posited most famously by Freud (1919/2003), building on the work of Jentsch (1908), it is to do with the *unheimliche* (literally, the ‘unhomely’), the familiar being rendered unfamiliar, a blurring of the boundary between the animate and the inanimate, the living and the dead, the embodied and the disembodied, the present and the past or absent.

Its connection and concern with the workings of new technologies have been much discussed (for example see Royle 2003, Coyne 2005, Ramey 2005, Weight 2006), but the theme of the uncanny has been under-considered in discussions about the place of the contemporary university, and the project of learning and teaching within the digital. As Kocchar-Lindgren (2009) describes, in his exploration of the possibility of ‘phantomenology’ in the theorising of education:

As some of us within the university...attempt to ‘think the uncanny’ along the lines of phantomenology, what experience will emerge for the academetron, that learning machine in which we all participate and that produces through the operations of reason so much useful and quantifiable knowledge? If there is anything to this being haunted within the university...it will show itself not only in the density of a philosophical discourse dispersed throughout a variety of departments, but also in our everyday habits of teaching, learning, reading, and writing... Indeed, one of the effects of haunting will be to destabilize the traditional modern site of teaching, the classroom, and its place in the so-called system of the university. (4)

For in working online as teachers and learners, we are working in ‘destabilized’ classrooms, engaging in spaces and practices which are disquieting, disorienting, strange, anxiety-inducing, uncanny. For Boon and Sinclair (2009), writing about the experience of being a learner within Second Life and Facebook, this disquiet is located in a new relation to the real and to the sense of oneself: ‘this is a new kind of experience, a new metaphor, a new world in which to re/create ourselves, re/imagine our relationships to others, and re/evaluate the real and the unreal’ (103). In its engagement with ‘a wide range of technologies of de- and rematerialization’ (Kocchar-Lindgren 2009: 7), teaching practice is increasingly concerned with the ghostly, the haunted, the strange and the ontologically disturbing. For these are technologies which commingle the familiar and the unfamiliar (Royle 2003: 1), positioning us *differently* on the continuum of presence/absence.

There are perhaps two ways of responding to the disquiet generated by these new positionings, this sudden unfamiliarity of our textual and communicative practices. For Carrington (2005), writing about the ‘uncanny’ literacy practices of school-age children, and associated conceptions of childhood itself, ‘There is a need to articulate the unfamiliarity of childhood and new forms of text and to construct bridges to a sense of familiarity’ (480). We need, she hints, to make the unfamiliar familiar, to ‘normalise’ to an extent the uncanniness of the digital text. Other writing, however, stresses the *value* to teaching of the sense of the uncanny, of the way in which a defamiliarisation of

the strange act of teaching can be generative, something to value rather than to resolve. To 'think the uncanny' is 'to be uncertain, to question, to experience, in strangely new ways' (Royle 2003: 14).

There are connections here with recent thinking in higher education teaching which stresses the place of the troublesome, the anxiety-inducing, the strange, and the liminal (Bayne 2008a). Meyer and Land (2005) describe the notion of the 'threshold concept', a grappling with 'troublesome' areas of the curriculum (Perkins 1999, 2005) which prompts a 'transformation' in the student, a 'reconstruction of subjectivity' (Meyer and Land 2005: 7). Further:

Difficulty in understanding threshold concepts may leave the learner in a state of *liminality* (Latin *limen* – 'threshold'), a suspended state in which understanding approximates to a kind of mimicry or lack of authenticity... the insights gained when the learner crosses the threshold might also be unsettling, involving a sense of loss. (16)

In drawing on the tropes of liminality, mimicry and 'sense of loss' Meyer and Land share the terms of the uncanny in describing the act and process of learning, and its effects on the subjectivity of the student. For the uncanny 'has to do with a strangeness of framing and borders, an experience of liminality' (Royle 2003: 1), while 'mimicry is a dark practice, beyond the pale of rationality' (Coyne 2005: 10).

For Barnett (2005), the notion of 'strangeness' promises nothing less than a 'new universal' for the university in an age of supercomplexity. Teaching in this vision becomes focused on 'the production of human capacities... for the personal assimilation and creation of strangeness':

Such a conception of 'teaching' looks to a fundamental break with conventional pedagogical relationships and look to curricula that present awkward spaces to and for students. Through such spaces, they will realize for themselves their capacities for assimilating and even for producing strangeness. (795)

Such a vision, and such spaces, will represent what is for Barnett an urgently-needed 'ontological turn' in higher education, a greater concern with the nature of being in relation to teaching and learning, and a nurturing in students of the ability to live with intellectual uncertainty (Barnett 2007). For Royle too, 'intellectual uncertainty' – central to many understandings of the uncanny (Houghton 2003, Kristeva 1991, Jentsch 1908) – is something generative, exhilarating and 'a crucial dimension of any teaching worth of the name' (Royle 2003: 52). Volatile, unfamiliar digital spaces for learning perhaps materialise and to an extent *literalise* Barnett's 'awkward spaces' – when used well, they open to us vibrant new domains where generative intellectual uncertainties might be nurtured.

Barnett's discussion, unlike Royle's, does not explicitly reference the uncanny. Where Barnett calls for an 'ontological turn' in higher education, Royle extends this via the terms of 'hauntology', claiming that patterns of influence and memory mean that there is 'no teaching without memory of the dead' (53). 'Hauntology' is a term taken from Derrida's *Spectres of Marx* (1994) (being a close homonym of 'ontology') to think through the state of the spectre as neither being nor not-being, and to re-think the nature of past, present and future in terms of 'a...successive linking of presents' (17).

Reflection on the operations of temporality within the digital, as this paper will show, is key to understanding how we might formulate a pedagogy which takes account of the multiple

synchronicities available to us when we work online. At the same time, the ontological blurring of being and not-being, presence and absence online, are crucial in considering how distance modes reposition the 'thereness' of learners and teachers, rendering us in a sense ghost-like, spectres 'hovering between... presence and absence, and making established certainties vacillate' (Davis 2005: 376). As Kocchar-Lindgren describes it, 'ghosts, as liminal figures of repetition ... break open the old structures that wish to reproduce themselves, disturb the "traditional" epistemological and pedagogical order of the university' (10).

The remainder of this paper will demonstrate how, through consideration of the 'uncanny' effects of digital mediation on teaching and learning, we can build on the positive and generative interpretations of strangeness, intellectual uncertainty and 'ghostliness' in formulating a radical new (online) pedagogy which has to do with the 'phantomenological':

As we in the university know... the academtron will keep running full speed ahead for the sake of the incorporated state for as far ahead as we can see, though here and there – in the shadows of the interstices of the institution – there are almost silent glitches in the machine as it reorganizes itself, phantomenological encounters that make their own claims. (9)

I will approach the possibility of the 'phantomenological' pedagogical encounter via the themes of place, body and text.

A place of ghosts

In his exploration of the various cultural manifestations of the uncanny, Royle describes the university as 'a ghostly institution... haunted not only by questions concerning the nature of teaching but also by a sense of its relationship to itself and to its own past.' (54) The university's digital futures promise more of this spectrality, as technologically-mediated communication makes distant engagement with its pedagogies increasingly viable, and increasingly desirable. The university becomes 'emptied' of the bodies of its students and teachers who engage with each other – in new and often greater intimacy – through the multiple media of the screen, and in a fluctuating orientation to the notion of 'being there'.

In being asked about their sense of place in relation to the university, students on the University of Edinburgh's MSc in E-learning – a wholly online, distance programme – highlighted the importance of the symbolic significance of the institution to them, a significance which was privileged over any sense of its material 'presence':

"Place for me is probably the learning community, I have not really considered Edinburgh as the physical place at all."

"In a way Edinburgh uni feels co-incident and doesn't really matter, it's there for the admin bit and as a place doesn't exist."

"Being a student at the University of Edinburgh means more to me in terms of its reputation than its location."

“The importance of 'place' to me has been in its destruction.”¹

This crumbling away of material reality in favour of a ‘psychical reality’ (Freud 1919/2003) to do with learning community and institutional prestige connects with the aspect of the uncanny which is to do with intellectual uncertainty, and the blurring of fantasy and reality. For Freud, ‘an uncanny effect often arises....when a symbol takes on the full function and significance of what it symbolises’ (150). Kristeva (1991) expands on this aspect of the uncanny:

In other words, the sign is not experienced as arbitrary but assumes a real importance. As a consequence, the material reality that the sign was commonly supposed to point to crumbles away to the benefit of imagination, which is no more than ‘the over-accentuation of psychical reality in comparison with material reality’. (186)

This lies at the heart of the ‘intellectual uncertainty’ which is an ‘essential condition for the emergence of a sense of the uncanny’ (Jentsch 1908). In the context of a ‘distance’ education, the many digital signs and traces of the university – its virtual learning environments – come to take over the ‘full function’ of the institution they symbolise. The university’s online manifestations *become* the university. As a ‘place [it] doesn’t exist’. This ‘edgelessness’ of the university, foregrounded in a recent Demos report (Bradwell 2009), renders it uncanny in a way which may be generative of new and vital approaches to re-thinking the task of teaching. The destabilised, haunted online ‘classroom’, becomes what Barnett (2007) – writing within a context which is not explicitly concerned with the digital – calls ‘a fluid space...[where] there are few, if any fixed compass bearings’ (71).

What would a digital pedagogy look like which engaged purposefully with this fluid, haunted space? It would be one defined, perhaps, by remoteness – one in which the material ‘distancing’ of teacher from student and student from student was not seen as a question of compromise (distance learning as ‘second best’) but as a positive embrace of a different kind of presence, one which opens up new ways of defining and re-thinking ‘contact’. As Ascott (2003) has written:

It’s not simply that many colleges are haunted by the ghosts of culture past, but that apparitions of the future are emerging on every screen, in every network. These apparitions are the constructions of distributed mind, the coming-into-being of new forms of human presence, half-real, half-virtual, new forms of social relationships, realized in telepresence, set in cyberspace.’(18; quoted in Kocchar-Lindgren 2009: 8)

Such an approach would turn away from digital environments which attempt to contain the pedagogical encounter within an online replication of the bounded classroom – we might see the closed spaces of the conventional virtual learning environment as working to limit the extent to which online learning spaces are *allowed* to be uncanny, volatile, disorienting (Cousin 2005, Bayne 2008b). An uncanny digital pedagogy concerned with ghostliness of place would take a confident stance toward its own ‘otherness’, using the multiple, disaggregated and public nodes of the read-write web as places to conduct its business.

¹ Thanks to Jen Ross, Hamish Macleod and students on the MSc in E-learning for these quotes.

Fragmented bodies

These distributed, disaggregated models of engagement seen on the social web are defined by fragmentation, by a flexible, fluid movement between groups and applications which requires individuals to re-make their identities – to double themselves – every time they register for a new network, a new service. In this doubling we at times see the ontological dissonance of the uncanny, as ‘selfhood’ across the network becomes ‘duplicated, divided and interchanged’ (Freud 1919/2003: 141). For example:

Facebook user profiles are obvious constructs: there is truth in them, but invariably artifice as well. Thus, to some, these digital selves become fractured, confused reflections of a person, never wholly unreal, but never wholly real either – a seeming half-truth. (Boon and Sinclair 2009: 103)

On registering on a social site, we are invariably invited – almost as a first step – to ‘upload an image’, to duplicate ourselves visually in a piece of identity work which invites artifice and play as much as ‘authenticity’ or its semblance. In that our images and profiles – and, in more visual environments, our avatars – represent a ‘re-embodiment’ within the terms of the digital, we scatter our ‘bodies’ across the web where they gain a kind of independence as nodes for commentary, connection and appropriation by others into new networks and new configurations. These versions of ourselves become representative of uncanny ‘embodied absence’ as much as ‘disembodied presence’ (Hook 2005); our actual and immediate activity on the network at any given time is less important than the presence of our representation, our ‘ghost’. These kinds of doublings might be cast in Cartesian terms as having to do with the de-coupling of body from soul. For Hook, as for Boon and Sinclair (2009), they embrace ‘problems of human authenticity and essence, of singularity. In that which is uncanny then we have an affront to the hoped-for uniqueness of soul’ (697). The embodied absences of the social web involve us in an uncanny movement toward the posthuman, toward a kind of death, in that we:

find the de-coupling of body and soul disconcerting: ‘the human’ after all, might be said to be one way of thinking about the joint presence of these factors in a single, stable ontological form. An uncanniness of presence is experienced when we perceive qualities of the human body, aspects of its ‘figural form’ occurring in the absence of an associated subjectivity. (Hook 2005: 700)

For Hook – writing about public monuments rather than digital ‘ghosts’ – such manifestations of the uncanny have ideological implications, in that they interpellate us, asking us to impute a ‘psychological presence’ which resolves the ontological dissonance induced by the de-coupling of ‘body’ and ‘soul’, and in doing so neutralises the vision of the ‘double’ as an uncanny ‘harbinger of death’ (Freud 1919/2003: 142). He draws an explicit connection between this imperative to ‘close the gap’ and Lacan’s (1977) ‘I-function’, which provisionally brings together ‘the disturbing incoherence and/or fragmentation of the *corps morcelé* [the fragmented body] into an imaginary whole’ (701).

For such doubling and disaggregation puts us 'at odds with ourselves' (Royle 2003: 6), or in Kristeva's (1991) terms makes us 'strangers to ourselves', in ways that disturb our ontological horizons and defamiliarise previously familiar social practices. Barnett (2007) – while approaching the idea from within a different philosophical framework – uses similar terms while seeing the notion of 'rendering strange' as having distinct pedagogical advantages. As a learner in higher education, the student:

is in a process in which she is, in a sense, being estranged from herself... The student is asked to submit to the strangeness of new worlds opening before her. If they were not strange worlds, there would be question marks over whether we were in the presence of higher education. (147)

Thus there is a sense in which the digital uncanny reflects the ontological disturbances opened up by a genuine higher education. Digital 'spectrality', while troublesome, also offers us opportunities to re-think higher education teaching in new and enthralling ways.

There is more, however, to the notion of ghostliness and doubling within the context of the digital than new ways of representing embodied selfhood – for ghosts are to do with disjunctions of *time*, as well as *body*:

The ghost... is a figure who is both without body and out of their own natural time, and hence unsettling on two counts. The uncanny disturbs the ego in its relationship to body and time. It is a response... to a breakdown of a sort of implicit natural order, be it that of history (the separateness of past and present) or of embodiment (the lack of co-ordination between body and soul). (Hook 2005: 698)

The problematising of the 'natural' relation between past and present is a key issue for hauntology, which supplants their distinctness with the notion of 'a general temporality made up of the successive linking of presents identical to themselves and contemporary with themselves' (Derrida 1994: 17). Taking as a point of reference Hamlet's exclamation that 'The time is out of joint', hauntology explores the theme of 'temporal disjuncture':

Hauntology isn't about the return of the past, but about the fact that the origin was already spectral. We live in a time when the past is present, and the present is saturated with the past. Hauntology emerges as a crucial – cultural and political – alternative both to linear history *and* to postmodernism's permanent revival. (k-punk 2006: no page)

Working virtually has already been described as working within a 'rolling present' (Hoefling 2003) – the multiple synchronicities of online communication play on this notion of temporal disjuncture, of many 'nows'. Thus an uncanny digital pedagogy concerned with reflecting on, and playing with, the hauntological notion of temporal disjuncture would deliberately spread itself across multiple orientations toward the synchronous and the asynchronous – working at one point within the securely asynchronous discussion board, at another with the chaotic textual tapestry of the real-time text chat, and at another with technologies like Twitter, the synchronicity of which lies somewhere between the two.

It would also play, reflexively and unapologetically, with the various modes of bodily representation within the digital, working across many spectral manifestations – text, video, voice, avatar. In doing

so it would consciously explore different modes of disaggregation and re-aggregation online, working creatively with the fragmented, spectral texts and presences which constitute the network. For example, the MSc in E-learning at the University of Edinburgh assesses part of its programme through the 'submission' of a 'lifestream', which aggregates a student's activities across multiple social sites (Twitter, blogs, social bookmarking and so on) into a single digital artefact. This encapsulates the sense of the learning process as volatile, disorienting, invigorating, and stretches conventional assessment frameworks to their limits. In defamiliarising the familiar through creative pedagogical appropriation of the digital, teaching becomes newly, and productively, strange.

Uncanny texts

Carrington (2005) has written insightfully about the ways in which the 'sudden unfamiliarity' of children's texts and literacy practices (primarily blogging) appear as uncanny in the eyes of those responsible for teaching them, 'both in terms of the anxiety caused by the unexpectedly unfamiliar and for the increasing fuzziness of the concepts of text and literacy' (468). Literacy practices informed and structured by the print paradigm are troubled and made strange by the new digital texts. For Carrington, 'contemporary schooling, as a social institution, remains strongly attached to a concept of literacy revolving around technologies and practices associated with print' (468).

The same might be said of literacy practices within the university, where a student's success is determined by the extent to which he or she demonstrates ability through analysis expressed in written form in essays and exam scripts, and where the worth of academic staff is still to a large extent measured by published (i.e. printed) output. Throughout the university writing, captured in its print form, is still the primary marker of academic legitimacy.

Carrington sees a connection between new, uncanny literacy practices and a challenge to conventional understandings of childhood which is deeply disturbing to many. Something similar might be seen within the context of the university, in which print literacy is closely identified with the notion of scholarship itself:

The new, capital-intensive print technology of the early sixteenth century was able to produce almost flawless replicas of a given text over and over again. At once, the symbolic power of the book is redefined. Comprehending the book as an intellectual tool rather than as a devotional object or as the badge of luxury, was a direct result of Gutenberg, whilst the creation of a community or network of scholars throughout Europe was equally a phenomenon associated with the arrival of print. The beguiling myth of the impoverished scholar, sustained by membership of an invisible community of the mind, could only have emerged once books were more widely available. (Rhodes and Sawday 2000: 4)

The printed book to an extent thus both creates and constitutes the modern academic. In the humanities, the liberation of scholars from the work of preserving texts in the form of fragile manuscripts enabled the development of new ideas about the task of scholarship and criticism (Landow 1997: 21) while, as Eisenstein has shown, it was also central in mapping the terrain of the modern scientist (Eisenstein 1980: 520-574). The printed book also liberated students from their

teachers. It was no longer necessary for them to 'sit at the feet of a given master' in order to learn – academic mastery was available to them on their own terms, via the printed text (Eisenstein 1980: 66).

This close identification of scholarship and teaching with print literacy opens up the domain of the digital text to new possibilities for an uncanny pedagogy, in the way in which it makes established social practices surrounding the generation and exchange of academic discourse unfamiliar and strange. For the digital text, in its many forms, is volatile where print is stable, fragmented where print is bound, distributable where print is fixed, and often of collective or anonymous authorship in contrast to the tight association of author and text within the print mode (Bayne 2006).

An uncanny digital pedagogy would therefore undertake creative engagement with these new and often difficult textual environments, in a way which plays on the – often disturbing – 'loosening' of the tight relation between text and author online and in a way which, again, poses challenges to stable assessment orthodoxies. Single group marks for collectively-produced wikis, for example, challenges the individuating assumptions of assessment practices informed by print convention. Inviting students to submit work in the form of web essays and hypertexts is hardly new in higher education (for example see Landow 1997, Carter 2003, Shin and Cimasko 2008), yet in their breaching of the 'rules' of spatiality (Coyne 2005: 7) and their re-positioning of the relation between text and reader, such artefacts offer exhilarating and rigorous means for 'making strange' our understanding of the way in which academic text relates both to space and to conventional notions of authorship. Such textual practices, still marginal within the university, defamiliarise literacy conventions which have long been embedded within our pedagogical practices, introducing awkwardnesses and uncertainties which invite us 'to question, to experience, in strangely new ways' (Royle 2003: 14).

In conclusion

This paper has reflected upon the themes of uncertainty, haunting, anxiety and the uncanny within the context of learning and teaching online. In doing so, it has attempted to begin the task of outlining how teachers and students might use the notion of the uncanny as a way of thinking through some of the more radical and, ironically, enlivening implications of digitality for our academic practice. Thinking the uncanny in these terms gives a positive inflection to the themes of deathliness, ghostliness, troublesomeness and uncertainty, one which meshes well with contemporary thinking on the nature and purpose of higher education. When viewed through the lens of the digital uncanny, the established certainties of our social practices relating to how we are positioned toward our institutions, our texts, our own experience of 'being' as teachers and students, becomes new, rich and strange.

This paper has attempted a beginning in thinking about how we might, in practice, go about forging generative digital pedagogies based on a theory of the uncanny. Such pedagogies work positively, creatively and energetically with the new, disorienting spaces presented to us by digital mediation. Within this view the digital represents not an enhancement to, extension of, or substitute for familiar, offline practices. Rather, it is a *privileged* mode, one in which new ontological positionings, and new dispositions toward teaching and toward knowledge might be explored and delighted in.

References

- Ascott, R (2003) *Telematic embrace: visionary theories of art, technology, and consciousness*. Berkeley: University of California Press.
- Barnett, R. (2005) Recapturing the universal in the university, *Educational Philosophy and Theory*, vol 27, no. 6, 785-797
- Barnett, R. (2007) *A Will to Learn: being a student in an age of uncertainty*. Buckingham: Society for Research in Higher Education and Open University Press.
- Bayne, S (2006) Temptation, trash and trust: the authorship and authority of digital texts, *E-learning*, vol 3 (1). pp. 16-26.
- Bayne, S (2008a) Uncanny spaces for higher education: teaching and learning in virtual worlds. *Alt-J, Research in Learning Technology*, Vol. 16 (3), pp. 197-205.
- Bayne, S (2008b) Higher education as a visual practice: seeing through the virtual learning environment. *Teaching in Higher Education*, Vol. 13(4), pp. 395-410.
- Boon, S and Sinclair, C (2009) A world I don't inhabit: disquiet in identity and Facebook. *Educational Media International*, 46 (2).
- Bradwell, P (2009) *The edgeless university: why higher education must embrace technology*. London: Demos.
- Carrington, V. (2005) The uncanny, digital texts and literacy, *Language and Education*, vol 19, (6). pp.467-482.
- Carter, L. (2003) Argument in Hypertext: writing strategies and the problem of order in a nonsequential world, *Computers and Composition*, 20(1), pp. 3-22.
- Cousin, G. (2005). Learning from cyberspace in R. Land and S. Bayne (eds.) *Education in cyberspace*. London, Routledge. pp. 117-129.
- Coyne, R (2005) The digital uncanny in P Turner and E Davenport (eds) *Spaces, Spatiality and Technology*. Springer. pp.5-18.
- Davis, C (2005) État Présent: Hauntology, Spectres and Phantoms. *French Studies*, 59 (3). 373-379.
- Derrida, J (1994) *Spectres of Marx: the state of the debt, the work of mourning, and the New International*. translated by Peggy Kamuf. London: Routledge.
- Eisenstein, E. (1980) *The printing press as an agent of change: communications and cultural transformations in early-modern Europe*. Cambridge: Cambridge University Press.
- Freud, S. (1919/2003) *The Uncanny*. London: Penguin Classics.

submission for special issue of *London Review of Education*

Grenville, B (2001) *The uncanny: experiments in cyborg culture*. Vancouver art gallery, Arsenal pulp press.

Haughton, H. (2003) 'Introduction' to Sigmund Freud, *The Uncanny*. London: Penguin Classics. pp.vii-lx.

Hoefling, T (2003) *Working Virtually: managing people for successful virtual teams and organizations*. Washington: Stylus Publishing.

Hook, D (2005) Monumental space and the uncanny. *Geoforum*, 36. 688-704

Jentsch, E. (1908) Zur psychologie des unheimlichen, *Psychiatrisch-neurologische Wochenschrift*, no. 22 and no. 23.

Kochhar-Lindgren, G. (2009) The haunting of the university: phantomenology and the house of learning. *Pedagogy: critical approaches to teaching literature, language, composition and culture*. vol 9 (1). 3-12

k-punk (2006) Phonograph blues. accessed online: <http://k-punk.abstractdynamics.org/archives/008535.html>. date of access: 7 July 2009.

Kristeva, J. (1991) *Strangers to ourselves*. London: Harvester Wheatsheaf.

Lacan, J (1977) *Ecrits: a selection*. trans by Alan Sheridan. London: Routledge.

Landow, G. (1997) *Hypertext 2.0: the convergence of contemporary critical theory and technology*, Baltimore: The Johns Hopkins University Press.

Meyer, J.H.F. and Land, R. (2005) Threshold concepts: an introduction in J.H.F. Meyer and R. Land (eds) *Overcoming barriers to student understanding: threshold concepts and troublesome knowledge*. London: Routledge Falmer. pp.3-18.

Perkins, D. (1999) The many faces of constructivism, *Educational Leadership*, vol. 57, no. 3.

Perkins, D. (2006) Constructivism and troublesome knowledge. In J. H. F. Meyer and R. Land (eds), *Overcoming barriers to student understanding: threshold concepts and troublesome knowledge*, London: Routledge Falmer. pp 33-47.

Ramey, C. H. (2005). The uncanny valley of similarities concerning abortion, baldness, heaps of sand, and humanlike robots. In *Proceedings of Views of the Uncanny Valley Workshop: IEEE-RAS International Conference on Humanoid Robots* (pp. 8-13). Tsukuba, Japan.

Rhodes, N. and Sawday, J. (2000), 'Paperworlds: imagining the Renaissance computer', in *The Renaissance computer: knowledge technology in the first age of print* (ed, Rhodes, N. and Sawday, J.) London: Routledge, pp.1-17.

Royle, N. (2003) *The Uncanny*. Manchester: Manchester University Press.

Shin, Dong-shin and Cimasko, Tony (2008) Multimodal Composition in a College ESL Class: New Tools, Traditional Norms, *Computers and Composition*, 25 (4), pp.376-395.

submission for special issue of *London Review of Education*

Weight, J. (2006) I, apparatus, you: a technosocial introduction to creative practice. *Convergence: the International Journal of Research into New Media Technologies*, 12 (4), pp.413-446.