Performing design: game design, practice, praxis and the theatre of the impressed

truna aka j.turner and Gordon Moyes

Abstract

This paper is a reflection on a design teaching project that endeavours to establish a culture of critical design thinking in a tertiary game design course. In the first instance, the 'performing design' project arose as a response to contemporary issues and tensions in the Australian games industry and game design education; in essence, the problem of how to scaffold undergraduate students from their entry point as 'players' (the impressed) into becoming designers. The performing design project therefore started as a small-scale intervention to inspire reflection in a wider debate that includes: the potential evolution of the contemporary games industry; the purpose of game design education; and the positioning of game design as a design discipline.

Our position is that designing interactive playful works or games is victim of a tendency to simplify the discipline and view it from either the perspective of science or art. In this paper we look at some of the historical discussions on the distinct identity of games. Then we present an overview of the typical state of play in contemporary game design education which inspires the performing design project as an intervention or teaching technique. This leads us to question understandings of education and training and creativity and innovation. Finally, we reflect on insights arising from the performing design project which lead us to support Archer's call for a 'third area' that balances the monolithic practices of the two major academic disciplines.

Proem – on the creative act of making games

In 2010 Richard Perrin gave a talk at AmeCon, a UK based comics, anime and pop culture convention, entitled '*You can make video games'*. Perrin's stated goal was help his audience realise that the creation of games was something accessible and that they shouldn't be daunted but dive in and experiment. The original talk was revised for two further presentations in 2011 and 2012. It was then the subject of a response by Aleksander Adamkiewicz (2012) who was apparently aghast that Perrin made the making of games sound easy and whose plaint was that simply saying everyone can make games is misleading because not everyone has the aptitude and that the talks were 'irresponsible'. Adamkiewicz's blog post caused a minor furore. Perrin posted a response on his blog entitled: *Oh no, I insist* (Perrin, 2012) in which he unpacked and explained his feelings about the contemporary state of game development and the desirability of, for want of a better description, democratising the means of production.

Perrin's passionate exhortation that game making is accessible to all (and indeed important to the evolution of the industry) is predicated on an understanding of game making as a creative act that, like other creative acts such as painting, writing, sculpture, has its beginnings in experimentation and hands on engagement with process. Adamkiewicz's response is about the 'quality' of the same creative act, or rather about the potential to undermine the quality of the outcomes of that creative act as a formal industrial process which requires 'aptitude' to learn the skills required. Both views effectively disappear the art of game *design* in favour a single discourse arising from the dyadic tension between art and science.

What is of interest in this discussion for those of us who work in game design education are the unasked questions. What is this 'creative act'? How do we scaffold our students into the creative processes of making those interactive playful works that we call games? How do we encourage them to comprehend the heterogeneity of the designed work and their role as designers and what does design mean when we talk about creativity? As a number of recent events and discussions show, the digital game form is accepted as a significant cultural artefact which is no longer isolated from other cultural forms but rather is seen as connected to other cultural and creative forms in a variety of ways (Keogh, 2012). It seems timely to reflect on pedagogical perspectives prevalent in those educational courses which are fostering the upcoming generation of game designers and makers.

Introduction: Making the interactive work known as a game

> *The videogame is the most rapidly evolving, exciting, subversive and feared cultural medium in the world today (Escape from Woomera, 2003)*

This paper focuses on the context, tensions and issues around the designing of digital games from the perspective of games education, that is, the teaching of how to make games. In particular, it is about the state of game design education and the manner in which it seems to be under pressure from assumptions about the dyads of education and training, creativity and innovation and art and science. We revisit and develop reflections which arise out of a recent project (truna aka j.turner, Browning & Moyes, 2012). The 'performing design' project was originally devised as a teaching

and learning exercise. We used a performance technique inspired by Augusto Boal in order to engage the participants, game design students, as critical meaning makers in works that they normally enjoy as players. The reflections that arise out of an apparently simple little educational technique are intriguingly resonant with the acceptance of the evolution of the digital game 'as entertainment' form into the culturally significant form that Keogh describes above. The opening story of the discussion between Perrin and Adamkiewicz is not an isolated one, more recently we see the same art vs. science discussion between Jonas Kyratzes and Ralph Koster (Kyratzes, 2012; Koster, 2012). As educators we feel there are important issues underlying such discussions. Koster uses the title *Two cultures* in his response to Kyratzes' plaint that game making is constrained by the engineering mindset, referring to the 1959 lecture by C.P. Snow whose central thesis was that the intellectual life of the whole of western society is constrained by the split into the two monolithic cultures of science and the humanities. Koster's solution is that "more people need to stand in the middle, a foot on each side."

Our position is that designing interactive playful works or games is indeed a victim of a tendency to simplify the discipline and view it from either the perspective of science or art, disappearing the potential contributions of design as a culture in its own right. Thus, in this paper we look at some of the historical discussions on the distinct identity of games. Then we present an overview of the typical state of play in contemporary game design education which inspires the performing design project as an intervention or teaching technique. Finally, we reflect on insights arising from the performing design project which lead us to support Archer (2005) and his call for a 'third area' that balances the monolithic practices of the two major academic disciplines.

The nature of the beast: art meets science?

Digital games are digital systems or softwares that provide an opportunity out of which experience arises for a player and where that experience is generally expected to be predicated to an idea of 'fun' whether it be achieved via exploration, challenge or problem solving (See Bartle, 1996). Since Aarseth announced 'computer game studies year one' (2001) many 'rhetorics' (Sutton-Smith, 1997) or 'discourses' (Foucault, 1996) have arisen around attempts to define the nature of such games leading Bogost to announce in his 2009 DiGRA keynote that "videogames are a mess" (Bogost, 2009). Bogost's discussion highlights the multi-modality of games and the digital game in particular and the slippery nature of the object.

At the simplest level, such digital games are typically distinguished from other media by notions of interactivity and an idea that interactivity provides the interactor with some kind of agency and control over the process of playing. The earliest discussions on the distinctive form of digital games go as far as to announce the form as "a democratic artform for a democratic age" (Costikyan 1994/2003, p. 195). Costikyan situates his claim in a short discussion about the nature of other media forms and the positioning of their audiences as non active in the construction of the work. He also tells us that:

Games provide a set of rules, but the players use them to create their own consequences. It's something like the music of John Cage: he wrote themes about which the musicians were expected to improvise. Games are like that: the designer provides the theme, the players the music. (Costikyan, 2003, p. 195)

Echoing Costikyan, Bolter and Gromala (2003) call for recognition of the interaction designer as choreographer of experience, differentiating between those interfaces which need to be transparent (Norman, 1998) in order to enact a task and those which should enable reflection in order to understand ourselves as context bound enactors. Their distinction between 'windows' and 'mirrors' seems to herald the Perrin – Adamkiewicz discussion that was used as a preamble to this paper in that it announces clearly that there are two potential pathways for the creative act. Thus in Bolter and Gromala's windows model, the making of the object is in the service of the task universe and transparency. Software in this area is constructed to assist the user with other forms of creation, writing, music making, communicating even perhaps game making. The mirror portmanteau allows for the experimental and the interpretive or exploratory. Mirrors are works which invite interpretation and reflection, their 'task' is that of the arts where the object is incomplete without meaning making on the part of the interactor.

When we wonder where the making of interactive works called games fits into this dyad we again find problematic disjunctures. At a functional level, a commercially successful digital game embeds a task of sorts. A game may be created to engage the player in challenge, story, problem solving or socialising, some are purposed to compulsive behaviours in the name of fun. However, in task oriented software the construction of the environment typically reveals itself through the task universe (Shneiderman, 1998) and wider cultural assumptions become evident as the objects and actions within the task universe are decomposed. In game spaces however, the task universe is exactly that – a universe and the aim of the task universe is essentially player experience. Game world type environments require that the designer is with the player every step of the way and that their plans and designs reveal themselves piece by piece as the player progresses. The environment or game space, the designer and the player form a *ménage a trois* essential to the nature of the game. In these software design environments, the designer is indeed a choreographer and the performance they are constructing is one firmly based in a cultural perspective. In order to ensure player agency and Murray's (1997) "active creation of belief", the designer must be overt in exploiting a shared cultural context. Game environments and those environments that offer virtual spaces where participants can interact with the designed landscape are extraordinary in this on-going mediation. Poole (2000) recognises this when he discusses the nature of game realities and the careful, designed tailoring of reality in order to provide satisfying play and achievable challenges. This careful tailoring of reality, the shared cultural context is effectively Bolter and Gromala's mirror where the interactor is in the position of bringing their own subjective meaning making to complete the work. These mirrors are the cultural contexts of many games, contexts such as the western ideologies and values that sit behind both utopian and dystopian game settings. However, to continue Bolter and Gromala's metaphor, access to the interactive playful experience is via a window, in order to play a game, the player must be able to function. We see this aspect of game design in reviews of commercial games where usability issues

are often cited as game experience flaws. It is this conflation of task and experience that leads Juul and Norton (2009) to announce that the game and game play experience is inseparable from the interface and that the tension between usable design and experience as goal drives innovation.

So, the making of games would seem to be a site where the tenets of both art and science meet and work together to create player experience. Koster's *Two cultures* discussion (2012) also affirms the need to 'straddle the two disciplines' and not take the side of either one in totality. Indeed, as we discuss below, the majority of courses offered for those who wish to gain skills in the area of game making tend to build upon practices and discourses taken from these two fields. However, as we hope to show, we propose that the history of game making and the evolution of educational courses in game making tend to neglect a third possibility: the field of design. We also suggest that misunderstanding how important design as a discipline might be, is a result of further conflations and lack of granularity in the understanding of distinctions between education and training and creativity and innovation.

Game Design and Education: The Performing Design Project Background

Game design is not typically perceived as part of the field of design. As an educational course option it is often an add-on to a course which has evolved in a department with expertise in art and animation or science and technology. Indeed, in the games industry, game designer is not an entry level position description but one that is earned by excelling at other work within the industry (Stevens, 2012). In the contemporary games industry, which is demonstrating a change of emphasis to smaller, agile teams, designers must also be able to turn their hand to other roles in order for the work to reach production. Thus game designer is not actually a clear role in the sense that one can become a game programmer or game asset modeller, the majority of traditional game industry designers are indeed Koster's 'straddlers'. In spite of all this, game design (as opposed to game development or art and animation) is offered as a potential pathway to graduate outcomes in many tertiary institutions as a third choice for those who do not wish to take the science option: programming, or the art option: animation. Game design courses frequently conflate design and development with production and marketing by structuring their curriculum around final capstone team projects with commercial potential. In these studio units, teams will be made up of students from different majors (or specialities), thus the programmers and the artists and animators and the game designers will be expected to work together to produce a playable game for exhibition and portfolio. Such studio based capstone units are indeed applauded by many as ideal practice based experience and skills confirmation for students intent on direct transition into the industry (Haukka, 2011) and while this may be true for those team members with programming and art or animation skills, the designer and the design process is not as clearly presented.

The performing design project therefore started as a small-scale intervention to inspire reflection in a wider debate that includes: the potential evolution of the

contemporary games industry; the purpose of game design education; and the positioning of game design as a design discipline.[1] In order to untangle issues that arise out of the current vogue in game design courses it is important to expose two core tensions at the outset and consider the distinction between 'education' and 'vocational training'. In the early days of the industry, game course offerings focussed on game development and associated software skills. In essence they were vocational and prepared trainees for positions at various levels in terms of 'craft' or 'trade'. Dyson (1998) offers a lucid description of the evolution of the software industry arising out of the same passion to "make and do" that gives birth to the 'skilled artificer' central to every civilisation. McCullough (1996) also observes that there is a growing correspondence between the digital tools and digital work with the traditional idea of 'craft'. This understanding of craft and skills can be seen as being at odds with the academic understanding of 'education' where the goal is the fostering of knowledge and the creation of lifelong thinkers. Academic institutions have evolved since their origins in the medieval university systems where the offspring of wealthy families would study theology or philosophy, but while we now accept a university degree in computer science as a skill-based qualification, (one geared to potential employment rather than self-improvement), we see the fine line between education and training becoming extremely convoluted in an area such as game design.

A second area of tension arises out of a modern understanding of the 'skilled artificer' and their role in industry. The spirit and the passion of making and doing that Dyson enthusiastically describes is intricately involved with his call to see creative skills as a basis for innovation and industry. So, creativity is the act of conceiving (or imagining) something original. It is a term associated with the literary and the artistic, the creative genius. Innovation is to do with implementation of a new or novel concept. It has strong connections with the business of industry: an innovative idea may not be particularly creative but might well enhance a product. Creativity, which arises out of that same subjective experience that is the (very general) goal of an education, does not have to be practical or have an industry outcome. Creativity is about acquiring and refining a knowledge base and being able to engage with ideation and process (Locke, 2008).

Such distinctions are important for us in unpacking reflections around the current project. The goal of the teaching process was to set the seeds of creativity, not instead of innovation, but in order to re-direct and subvert the accepted equation between innovation and industrial outcomes or products. As we discuss below, the interactive entertainment industry – the games industry – is in a state of change and it is our belief that this change gives us the opportunity to foster a much wider characterisation of the nature of digital games and playful design. This endeavour is partly about envisioning our technological futures, and partly concerned with fostering

[1] Since our central purpose is not to present a review, but rather to invite further deliberation on such issues, and particularly about the future of game design as a design discipline, we have generalised our comments on tertiary game design courses. Many educational institutions are responding and adapting to the changing climate in the digital games industry and we look forward to continued discussion about the issues raised here.

more opportunity for our students beyond filling a perceived skills gap (Haukka, 2011). In essence it is about re-envisioning the world of games as powerful, playful creative design.

We propose that the evolution of the typical game design course is still in the process of recognising the potential of being a design discipline. It is essential that we as educators find ways to foster design thinking where "innovation is powered by a thorough understanding" (Brown, 2008) and where creativity is fostered in its own right as part of the design process. More importantly, such reflections on the legacies of terms discussed – education and training and creativity and innovation – and confusion around their meaning in the educational context indicate that it is timely to reflect on what we are doing as educators. To put it simply, we see a tendency in contemporary game design courses to present game design in isolation as a vocational skill that supports innovation rather than as a process that encourages creativity. Conversations around these issues are also of interest in terms of the emerging cultural sector that Keogh (2012) observes.

The Emerging Sector

The emerging games sector is inclusive of those creative industries whose business is the making and selling of games but it also includes more experimental projects where the creative potential of the medium can be explored. This opening of the world of game making into a world where the objects made are accepted as contemporary cultural artefacts is often described as a shift away from a technology sector towards an arts sector (see Callaghan in Eltham, 2011). We however propose that while this might be so, we would be extremely remiss to dismiss the potentials of design and designing as an affective voice and that the possibilities of the incunabular sector depend much on understanding design as a vital member. Indeed, our call is for more than design as a stakeholder in the games sector, it is for an understanding of critical design and its role in the potential of the contemporary game and interactive entertainment sector.

Critical design is important if the sector is going to achieve more than a superficial growth because it challenges preconceptions and expectations, thus provoking new ways of thinking about the object, its use and the surrounding environment (Dunne, 1999; Raby, 2001). Innovation and creativity and critical design thinking are the foundation strengths of sites where the research and development (R&D) of future engagements with playful technologies are taking place. In both the R&D contexts where the outcome is a marketable product, and the more radical R&D, we see trans-disciplinary sites where outcomes might be serendipitous or evocative, design and designing has more substance as a role.

Thus the idea of promoting design thinking and a critical understanding of the designed object, in our case the game and play, needs to be reframed and positioned as an essential aspect of the game design course. Here we find an appropriate focus for education where we can set expectations around thinking and critical analysis, not just within games or aimed at innovation in games, but in a critical design sense where creativity is valued and encouraged.

Creative designing and the theatre of the impressed

The first stage of critical design thinking is the ability to see 'how something was done'; that is, to analyse from a designer perspective. This gives students the terminology and concepts with which to continue their design education. The students, being passionate players, are keen to narrate player experience. By expanding and formalising their design vocabulary, we begin the process of moving their point of view from that of playing to that of designing (Ashton, 2010). So, then, how do we present the challenge of adopting a design mindset and introducing critical design when it is highly likely that the outcomes might be Lindsay Grace's (2011) 'uncomfortable' play?

Design thinking, according to its simplest definition, is a style of creative thinking-in-action around ill-defined problems in particular where empathy and creativity (as opposed to innovation) are emphasised. Design thinking is thus appropriate to the purview of education as it encourages process and ideation. According to Cross (1982) designerly thinkers solve problems by synthesis rather than the analysis predominant in scientific approaches. Critical design takes its adjective from critical theory where the base concept is "to liberate human beings from the circumstances which enslave them" (Horkheimer, 1982, p. 244). The idea of 'critical' thus embeds approaches that are intended to reveal and question normative practices and dominant discourses. To be critical in this sense is about questioning the why and how of the accepted and to 'liberate' from the constraints of assumptions. In the case of game design, such assumptions about the meaning of design are impressed on the student cohorts via their experience of the works. That is, they continuously re-enact and confirm the accepted form. Here we realise that the usual approach of analysis (alone) is not adequate and that analysing games as creative works is only a first step towards critical design. Game analysis, and the normal habits of education such as reporting on analysis in written form, tends to be a re-enactment of those normative practices we are attempting to reveal.

The very nature of re-enactment of the meanings, the core experiences of design from the designer's perspective, brought us to a position already detailed and explored by Augusto Boal in his *Theatre of the Oppressed* workshops (1979), where the core notion is the uncovering of author-as-designer intent via a process of engaged activity. This approach has its roots in the early critical literacy work of Paolo Freire who taught functional literacy to peasants in Brazil, but who, in so doing, exposed the baggage and influence of the words used in order to bring about a consciousness of the established power relations (Freire, 1972). Freire's methodology informs the work of Boal who engages with similar issues and contexts with the toolset of drama. Boal's workshops focus on the positioning of the spectator as passive consumer of a work. His aim is to re-position spectator as 'spect-actor', one who is engaged in the re-imaging of the piece in order to source that elusive authorial intent and expose the underlying assumptions structured by dramatic conventions.

Boal's work in liberatory theatre invites the audience to invade the stage and transform the images that are there. Design intrinsically transforms objects; it becomes a cultural engine. Once we see design as a cultural engine then we can

also argue for cultural critique in the form of analysis of the affective domain of such objects, an understanding of their baggage and lineages and so critical practices around those objects.

Given that games are defined as 'interactive' it might appear initially at odds to see our students as 'a passive audience' but playing an active part in the work is not the same as evaluating the assumptions of a work. Our students may not be 'the oppressed' of Boal's work but they are certainly 'impressed' and consequently deserve a similar transformation process, especially one that announces 'game playing' as an essential aspect of the transformative process. We found an ideal vehicle to implement these concepts – or interventions – in the YouTube phenomenon of Sweding, the re-presenting of popular media.

Sweding interactive works as praxis

> *The world of games is in a kind of a trance. People are programmed to accept so little but the possibilities are so great. – Allegra Geller (Cronenberg, 1999)*

Sweding involves the 'quick and dirty' re-make and representation of a media object (typically a film). The practice originates in Hollywood as the central trope in a film about the mismanagement of a video rental outlet (Gondry, 2008). Sweding is transformative in Boalian terms as it focuses on the film as artefact and sees audiences re-enact the moments of a work that they see as meaningful from subjective experience (Kerr, 2009). In the Sweded film, we see Sweders enacting de Certeau's creative opportunities or 'tactics' (1984) and affirming the shared experience of the work rather than the authorised version. The typical Swede is limited to the free Youtube upload and time constraints of a few minutes and the agreed form generally insists on a single take without editing and so must synthesise the experience of the work into a short span. There is much satire in the Sweded film where the use of exaggeration and ridicule becomes a shared code for the experience of popular culture. For our project, the practice of Sweding updates Boal's workshops in a form pertinent to the digital objects of our field. In the Sweded games that the students produce as outcomes of the project we see them moving beyond narration of player experience into a creative space where analysis of the work is 'played' through and embodied with their own experience of the work.

If, as Gaver says, designers must themselves be *homo ludens*, provocateurs, in order to "legitimise wonder, even encourage it" (Gaver, 2002, p. 3), then our logic is that they must also have a strong sense of the *experience* of designing, to be able to re-enact and so re-form the meanings of the works. What better way is there to achieve this than by physically enacting the designs they are analysing, by moving from 'passive' consumption to active appropriation and meaning making? As educators we are fostering the next generation of game designers who we trust will engage with the extraordinary possibilities of game design as the industry evolves into a cultural sector.

A Place for Design

We began this project with the notion that one way of fostering critical design thinking is via Brown's call for innovation "powered by a thorough understanding" (2008). A

problem that we encounter is the meaning of 'thorough' in context. The majority of our student participants certainly have intimate familiarity with the games they play and can recite individual experience in detail. They are less skilled at the more designerly approach where the goal of understanding is not about tacit player appreciation of the whole experience but must focus on understanding the way that all the elements of the design work together. In common with the majority of game design courses (and game development courses) this goal is addressed via a variety of analytical approaches. The typical starting point is playing a wide selection of games and appraising them in terms of their elements eg mechanics, aesthetics, stories and use of technology.[2] Ashton's work on students as players and designers offers an excellent discussion on this as an educational process. However, while this stage is essential, it tends to be geared towards the outcomes described earlier: capstone projects or communication-based projects such as written reports, perhaps even design examples. We do not appear to have our own expressive form. And we immediately encounter issues in terms of the goal of synthesis where the normal accepted form of expression is written theory or higher research based practice. This encounter is an ontological mismatch between the available educational practices and the educational goals.

The ontological mismatch between the available educational practices and the road to critical design thinking in the area of game design arises out of the history of these practices and their legacies in that which Archer (2005) might refer to as the monolithic practices of the two major academic disciplines. Thus science at its core offers a tool set of empirical analysis, mathematical rigour, functionally and eternally applicable outcomes, while the Arts and Humanities offer an interpretive tool set, cultural depth and, hopefully, compassion and ethical understanding in context. The dyad of arts and science are a product of cultural history and remain representative of the moment when the powerful guilds lost their authority and their status as educational institutions in favour of the universities and their monkish goals. For Archer, this is the historical context wherein Design loses both position and voice. According to Archer, writing as a practice arises out of the evolution of the Arts and Humanities, it is a reflective process which is by its very nature distanced from its object because it is about the object. Science on the other hand, Archer observes, claims the measurement of the object, the internal logic of its manifestation. For Archer, these territories leave the making and creation of objects on the outside:

> *What is left is the artefacts themselves and the experience, sensibility and skill that goes into their production and use. (Archer 2005, p. 10)*

Archer's call is seductive; indeed, we now see an implementation of this approach in the rise of practice-based and practice-led research. It is very pertinent to our goals of helping students to experience games critically and express their understanding. Exploring the possibilities of Boal's techniques with these student cohorts does appear to have allowed them to enact their understanding in a manner in keeping with Archer's conceptualisation of the third territory. Specifically, avoiding the

[2] A number of analytic systems are available, for example Jesse Schell's 'Lenses', Marc Leblanc's MDA framework, Morrison's Game Design Canvas etc.

distance from the work that writing about it can create offers an opportunity to build on analytical practice and to encourage Locke's synthesis within the constraints of an undergraduate course.

In our introduction we suggested that a key to ameliorating some of the issues apparent in typical game design courses (and indeed the national games sector) was to encourage design thinking and particularly the kind of design thinking that is driven by a thorough and critical understanding of the objects of the discipline. As a contribution to the wider debate, we propose that this design thinking should be situated within an understanding of the ontological natures of our disciplines and contemporary tertiary settings where 'critical' is usually taken to mean 'theoretical'.

Secondly, the tensions between the dyads of innovation and creativity and education and training that are discussed in this paper seem to result in positioning design (and game design in particular) as a hybrid child, caught in the stresses produced by attempts to force the legacies of these dyads into the same space. As educators, we understand that nurturing creative skills, powered by critical understanding, requires a break with accepted norms, so an important practical outcome of any discussion that leads to better general understandings must be to reframe design as a core competency. Since creative skills are the basis for innovation and industry then as educators we need to find ways of fostering design thinking. In practice, we need to find ways of encouraging students to reposition themselves as critical designers. In this current project we have started to explore methods that afford a more reflective, self-directed approach. It is through this reflexive process of deepening the understanding and engaging with subjective meaning making as outcome that, as educators, we can redirect the accepted equation between innovation and industrial outcomes or products, and give a much-needed additional impetus to creativity where the designing can actually be about itself.

The reflections that our performing design project have inspired are reminiscent of Susan Leigh Star's allegory of power and networks in her story of her onion intolerance and a certain fast food franchise's inability to comprehend it in any terms other than 'vegetarian' (Star, 1991). Game design education is the 'misfit' which attempts to straddle the two accepted cultures which dominate educational practices and which is therefore inevitably being seen as the 'difficult customer'. It seems fitting that we stumbled upon Boal's liberatory practice as a model to use for our teaching intervention in that his approach asks the subjects to transform established and accepted power relations and Design is defined as a transformative process. To return to those questions about design process and creativity we posed in the preamble, we suggest that one response is to foster the discipline of Design as a culture in our game design courses.

References

Aarseth, E. (2001). Computer Game Studies, Year One. *Game Studies*, *1*(1). Retrieved March 22, 2012 from http://www.gamestudies.org/0101/editorial.html

Adamkiewicz, A. (2012, March 7). No, You Can't Make Video Games. *Gamasutra – The Art & Business of Making Games*. Retrieved August 4, 2012, from http://www.gamasutra.com/blogs/AleksanderAdamkiewicz/20120703/173489/No_You_Cant_Make_Video_Games.php

Archer, B., Baynes, K. & Roberts, P. (2005). *A framework for design and design education: A reader containing papers from the 70s and 80s.* Warwickshire, UK: The Design and Technology Association.

Ashton, D. (2010). Player, student, designer: Games design students and changing relationships with games. *Games and Culture, 5*(3), 256-277.

Bartle, R. (1996). *Hearts, Clubs, Diamonds, Spades: Players who suit MUDs*. Retrieved August 22, 2012 from http://www.mud.co.uk/richard/hcds.htm

Boal, A. (1979). *Theatre of the oppressed*. (O. Leal McBride, Tran.) *Teatro de Oprimido* (1974). New York, NY: Theatre Communications Group.

Bogost, I. (2009). Videogames are a mess, Digital Games Research Association (DiGRA) keynote.*Breaking new ground: Innovation in games.* Retrieved June 22, 2012 from http://www.bogost.com/writing/videogames_are_a_mess.shtml

Bolter, J. D., & Gromala, D. (2003). *Windows and mirrors: interaction design, digital art, and the myth of transparency*. Cambridge, MA: MIT Press.

Brown, T. (2008, June). Design Thinking, *Harvard Business Review.* http://hbr.org/2008/06/design-thinking/ar/1

Costikyan, G. (1994). I have no words and I must design. In Salen, K., & Zimmerman, E. (2003).*Rules of play: game design fundamentals,* pp. 192-210. Cambridge, MA: MIT Press.

Cross, N. (1982). Designerly ways of knowing. *Design Studies, 3*(4), 221-227.

de Certeau, M. (1984). *The practice of everyday life.* Berkeley, CA: University of California Press.

Dyson, F.J. (1998). Science as a craft industry. *Science*, *280*(5366), 1014-1015 Retrieved March 22, 2012 from http://www.sciencemag.org/content/280/5366/1014.full

Dunne, A. (1999). *Hertzian tales: Electronic products, aesthetic experience and critical design*. London: Royal College of Art computer related design research studio.

Eltham, B. (2011, August 19). No playing around, video games are an art form. *Crikey*. http://www.crikey.com.au/2011/08/19/freeplay-video-games-art-form/

Freire, P. (1972). *Pedagogy of the oppressed.* New York: Penguin Books.

Foucault, M. (1969). *L'Archéologie du savoir*, Paris: Éditions Gallimard.

Gaver, W. (2002, June). Designing for Homo Ludens. *I3 Magazine*, (12). http://www.gold.ac.uk/media/46gaver-ludens-still.pdf

Gondry, M. (Director). (2008). *Be Kind Rewind* [Motion Picture]. United States: New Line Cinema.

Grace, L. (2011). Discomfort design: Critical reflection through uncomfortable play. In *Proceedings of the 17th International Symposium on Electronic Art (ISEA2011).* Istanbul, Turkey: ISEA.

Haukka, S. (2011). *Working in Australia's digital games industry consolidation report, ARC Centre of Excellence for Creative Industries and Innovation (CCi).* Retrieved March 22, 2012 from http://apo.org.au/research/working-australias-digital-games-industry-consolidation-report

Horkheimer, M. (1982). *Critical Theory*, New York: Seabury Press.

Juul, J. & Norton, M. (2009). Easy to use and incredibly difficult: On the mythical border between interface and gameplay. In *Proceedings of the 4th International Conference on Foundations of Digital Games*, pp. 107-112.

Keogh, B. (2012, September 28). Freeplay reminds us videogames matter: The cultural debate is over. *The conversation*. Retrieved Oct 2, 2012 from http://theconversation.edu.au/freeplay-reminds-us-videogames-matter-the-culture-debate-is-over-9825

Kerr, J. (2009). 'Rereading' Be Kind Rewind (USA 2008): How film history can be remapped through the social memories of popular culture. *Screening the past*, (24). http://www.latrobe.edu.au/screeningthepast/24/be-kind-rewind.html

Koster, R. (2012, July 6). *Two cultures and games*. Retrieved October 2, 2012 from http://www.raphkoster.com/2012/07/06/two-cultures-and-games/

Kyratzes, J. (2012, July 6). *Designing for grace*. Retrieved October 2, 2012 from http://www.jonas-kyratzes.net/2012/07/06/designing-for-grace/

Locke, J. (2008). What are Innovation, Creativity and Design? In B. von Stamm (Ed.) *Managing innovation, design and creativity* (pp. 1-18). UK: John Wiley & Sons.

McCullough, M. (1996). *Abstracting craft: The practiced digital hand.* Cambridge, MA: MIT Press.

Murray, J. (1997). *Hamlet on the Holodeck: The Future of Narrative in Cyberspace.* New York: The Free Press.

Norman, D. A. (1998). *The design of everyday things*. London: MIT Press.

Perrin, R. (2010). You Can Make Video Games, AmeCon 2010 [Media file]. Retrieved August 4, 2012, from http://www.youtube.com/watch?v=tJ6BqPXRTU0

Perrin, R. (2012). *Oh no, I insist*, Blog post, August 1, 2012. Retrieved August 4, 2012 from http://www.lockeddoorpuzzle.com/site/devblog/youreallycanhonest

Poole, S. (2000). *Trigger happy: videogames and the entertainment revolution*. New York: Arcade Publishing.

Raby, F. (2001). *Design Noir: The Secret Life of Electronic Objects*. Basel: Birkhäuser.

Shneiderman, B. (1998). *Designing the user interface: strategies for effective human-computer-interaction* (3rd ed.). Reading, MA: Addison Wesley Longman.

Snow, C.P. (2001 [1959]). *The Two Cultures*. London: Cambridge University Press

Star, S.L. (1991). Power, technologies and the phenomenology of conventions: on being allergic to onions. In J. Law (Ed), *A Sociology of monsters: Essays on power, technology, and domination* (pp. 26-56). London: Routledge.

Stevens, J. (2012, February 9). The pitfall of game design as an entry level career choice. *Game Career Guide*. Retrieved March 22 from http://gamecareerguide.com/features/1047/the_pitfall_of_game_design_as_an_.php

Sutton-Smith, B. (1997). *The ambiguity of play*. Cambridge, MA: Harvard University Press.

truna aka j.turner, Browning, D. & Moyes, G. (2012). Performing design analysis: Game design creativity and the theatre of the impressed. In *Proceedings of the 8th Australasian Conference on Interactive Entertainment: Playing the system, Auckland NZ 21-22 July 2012*. New York: ACM.

The Journal of Creative Technologies (JCT)
Issue 3: Interactivity, 2013

ISSN: 2230-2115

Colab, Auckland University of Technology, New Zealand

JCT is a research communication platform published by Colab at the Faculty of Design and Creative Technologies, Auckland University of Technology.
https://ctechjournal.aut.ac.nz