

Digital global learning: The world of images, affect and new understandings

Debra Donnelly and Kathryn Grushka

University of Newcastle

Abstract

This paper reports on an innovative pre-service teacher training course at the University of Newcastle, Australia that utilises visual digital competencies to investigate a critical global education agenda. The produced works provide evidence for the contention that there is a paradigm shift from print text with images as illustration to an image/text collaboration in the communication of sophisticated and nuanced meanings in the digital environment. It further contends that harnessing visual media culture and the possibilities afforded by image manipulation technologies is an excellent strategy for developing understandings about global issues and challenges in the context of pre-service teachers' disciplinary prescriptions. It proposes that these digital investigations encourage the adoption of global citizenry identities.

The artworks produced in the education course are positioned as learning objects which the pre-service teachers embed in their classroom practice with the aim of countering cultural stereotypes, discerning and repairing the view of the "other" in a post-colonial era. This paper unpacks the pedagogies of learning in a digital learning environment and, citing recent cognitive neuroscientific discoveries, highlights the role of the affect in learning and its utility to encourage empathetic global citizenship.

Introduction

Globalisation, technologies and media have positioned the world of images as an important productive and communicative force increasingly occupying all cultural sites (Mirzeoff, 1998, Barker, 2000, Szerszynski & Urry, 2006). With increasing speed and energy this phenomenon infiltrates all spaces (Guattari, 1995) and is now positioning itself as central to new learning. Such an orientation acknowledges the significance of the production of all images, artefacts, or objects as embodying cultural aesthetic forms, ideas, beliefs and values. In the context of globalisation and the proliferation of new digital worlds located in our mobile contemporary life, individual citizens need to develop the capacity to communicate using rich imagery. The visual is being foregrounded in learning and in the transference and creation of new cultural synergies that explore globalisation and the loss and reconstruction of cultural identities. Szerszynski & Urry (2006) argue that mobility and visibility (ways of seeing and being seen) have had a major impact in current cosmopolitan society. "Our world now consists of the capacity to 'travel' corporally, imaginatively and virtually. We consume many places, knowledge spaces and environments, we are curious about many locations and events and we are more prepared to take risks when we encounter 'other'" (p. 115).

This evolution of global identities and perspectives are major objectives of an innovative pre-service teacher training course at the University of Newcastle, Australia. Employing visual art education practice based on digital montage, this course sees a cross curricula cohort of secondary pre-service teachers harnessing visual performative competencies to produce a series of learning objects for classroom use. The created intra- and inter-textual narratives are evidence of the experimentation and investigative opportunities offered by digital technologies. The examples embedded in this paper illustrate how these narratives are a powerful vehicle for making new meaning; for developing critical citizenry; and for exploring learner identities beyond the confines of their varied discipline fields. The learning artefacts aim to counter cultural stereotypes and hegemonic narratives in a post-colonial era, cultivating open-mindedness and engagement with the diverse cacophony of global voices.

The paper narrates the pedagogical methods and strategies and uses student work samples to demonstrate the inquiries, revelations and new learning that the digital platforms facilitates. Further this paper proposes that visual art practice in the digital studio is an effective vehicle for exploring issues of globalisation and cultural diversity and supports the claim that critical global education precepts coupled with interactivity, experimentation and production are vital to attaining the tenets of transformative education (Buckingham, 2007; Walsh, 2007; Cope & Kalantzis, 2008).

World citizenship and digital global explorations

Advances in multi-platformed technologies and new media have globalised information and resulted in the blurring of cultural and national identities giving rise to the notion of the world citizen. One interpretation sees this stateless entity as the antithesis of a patriot and imagines the spectre of world government by big business conglomerates. However, a world citizen can also be seen as having moved to a level beyond state and national citizenship and holding trans-national concerns with global issues such as the environment, peace, trade, inequality and cultural imperialism (Gibson, 2008). It is this concept of world citizen that is promoted in this pre-service teaching course. This view of world citizenship has been linked to the concept of cosmopolitan (Osler, 2002) which promotes international experience, respect and honouring of other cultures and a concern for global issues. The phenomena of cosmopolitanism is characterised by a shift away from bounded and unique cultural communities, single identity and an intensified mixing of the signs, symbols and activities of compressed cultures (Held, 2004). In order to deal with these complexities, successful citizens of a globalized world need skills and attitudes that allow them to collaborate, negotiate, think critically and gain multiple perspectives through dialogic co-construction of meaning with individuals from diverse backgrounds, interests and cultures (Gibon, 2008).

Current definitions of global citizenship focus on active membership of community as political, social, environmental and economic agents opening up the potential for new connectedness and

interdependence to the broader society. While our visual global world may facilitate cultural diversity and new visual representations and present the promise of the development of dispositions that are more open, tolerant and flexible, it also presents the contradictory position. This position speaks of a world of rapid movement across traditional boundaries; the emergence of new borders; the homogenising of cultures; social and economic inequality; and emergent social and political instability. Robertson (1992) has offered a useful definition of globalisation as involving not only what people do but how they view the world. He proposes that globalisation has brought about “the compression of the world and the intensification of consciousness of the world as a whole”(p.8). Contemporary citizens are saturated with heavily edited and commodified images and impressions from all over the world. This paper argues that if they are to become informed global citizens, the pre-service teachers must be equipped for the task of navigating the visual transnational commodity society and become sensitized to stereotypical representations of the ‘other.’

The work of Case (1993) and Merryfield (2000) have inspired the direction of this course. Case (1993) identified two interconnected dimensions that facilitate a global perspective: the substantive and perceptual. He defined the substantive elements as knowledge of cultural values and practices, global interconnections, present worldwide concerns and conditions, historic origins and patterns in worldwide events and future directions. The perceptual dimension included five cognitive and affective attributes: open-mindedness, anticipation and acceptance of complexity, resistance to stereotyping, inclination to empathy and gender equity. This work is sustained by Merryfield (2000) who promoted the demolition of post-colonial knowledge structures and a transformation to an understanding of the “interaction and synergy of the global human experience” (Zong, 2005). Merryfield advocated giving voice to the marginalised, the omitted and the misrepresented and questioned accepted power relationships in culture dialogues. It is these notions that inform the explorations of the pre-service teachers in this course and it is through creativity, that the intellectual and affective domains of learning are given voice and revelatory conclusions reached.

The digital learning interface

The course is located in the changing landscape of digital new media and online activities and the lifeworld of today’s youth. It seeks to engage pre-service teachers in the complexity of real-world problems and asks them to contemplate solutions. Through learning-by-doing the pre-service teachers both experience how to learn in an authentic way and reflect on how to apply the pedagogy of this course to their own teaching in the realities of youth communication practices in the 21st century classroom. The pre-service teachers research in both traditional and online contexts and make informed judgements about the ways knowledge and information are communicated, valued and privileged within new media contexts.

The overarching focus is to develop skills in analysing, interpreting or reading visual data and in the digital production of inter-textual narratives to disrupt preconceived ideas related to a topic and support inquiry and questioning in the classroom. A short series of lectures are held concurrently with technology workshops that encourage experimentation with image and text manipulation. The lectures are presented by a cross-disciplinary teaching team and focus on basic design elements, visual semiotics and the appropriation and perversion of visual culture and media iconography to present multi-dimensional communication artefacts. The techniques of juxtapositioning, layering and employment of intra- and inter-textual irony are firstly modelled and then integrated into the pre-service teachers' practice. The course has drawn on the work of Zammit & Downes (2002) in '*A curriculum framework for new learning environments*' where creating, locating and critiquing are essential skills in working with images for meaning. Explicit teaching occurs around these three essential skills. The outcome of this framework "is the development of multi-literate individuals, who are able to be literate in several modes, and able to apply their skills and understandings in order to develop and demonstrate the understandings of concepts and topics across key learning areas" (p. 27).

Pre-service teachers are introduced to the role of images in multiple text analysis as it applies to local curriculum documents. They commence with the task of considering their own project through analysing, interpreting and critiquing past student work samples. They give consideration to the validity of the visual source data, the effective use of images, words and compositional elements in communicating problematic ideas to a classroom audience. The pre-service teachers are then given a range of opportunities to broaden their digital computer competencies through creating, locating and critiquing as essential skills in working with images for meaning. They learn to use appropriate visual design language to understand how the visual elements are a consideration when presenting visual narratives, facts or investigative findings. The course is delivered in a computer laboratory at the university, but has equal application in any classroom.

The pre-service teacher example "*Thirsty*" (Figure 1, below) is used here to demonstrate the steps in the processes of generating disruptive visual narrative posters for a classroom setting.

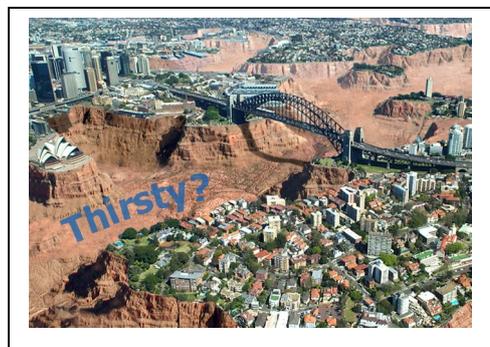


Figure 1. Julie Crumpton, "Thirsty" (2009), digital montage.

The initial focus after the conceptualisation of possible narrative ideas is to commence problem solving through making. In this example, the pre-service teacher needed to consider what images were most appropriate to communicate the key issue of water conservation in global sustainability. Commencing with an idea of personal significance and then moving to a global application saw the pre-service teacher identify Sydney Harbour as significantly iconic and personal to carry the message. Initially the pre-service teacher accessed and experimented with image data sources prior to refining their image selection. The pre-service teacher then considered how to digitally manipulate the image of the harbour and re-contextualise it as digital montage to make a powerful new narrative of disruption. Collins (1995) described this authentic learning as developing the skill of '*techno-textuality*', the mediation of knowledge using new media and new literacies (Anstey and Bull, 2006; Kalantzis and Cope, 2005). This is most effectively communicated with the removal of the water from the iconic scene, the insertion of a desert landscape, the subtle reworking of shadows and the juxtapositioning of the word *thirsty*.

The course also creates strong links to the web, a contemporary communication portal, and current school curriculum learning outcomes. The example above also demonstrates how the course takes a strong inter-disciplinary approach that finds the pre-service teachers working outside their discipline areas as they follow their lines of inquiry. Semiotics, a sign-interpretation and sign-creation process, is employed as the integrative framework in this pedagogy (Semetsky, 2010). This is particularly important in this inter-disciplinary course where the pre-service teachers are exposed to the connectivity between ways of knowing, such as scientific, historical and arts disciplinary methods and how words and images can be combined to "re-represent" and make new meanings. The pre-service teachers critically interpret a range of images as data, such as historical images, family photographs, popular media, maps, histograms, scientific illustration or other evidence of the physical to inform a site study, case study, an event or a narrative.

The digital poster assessment task and the learning environment are designed to model these new learning strategies. Staff members take the roles of facilitators and mentors in partnership relationships in the co-construction of meaning with the pre-service teachers. The pre-service teachers are encouraged to critique one another's work and move around the learning space and discuss ideas and techniques. Many are motivated by the authentic nature of the task and its applicability to their developing pedagogical practices. The artefacts produced are a series of learning objects which have practical classroom application as a stimulus for group work, writing task or for an extended discussion around the global key issue or problem.

Images, affect and new understandings

Recent cognitive neuroscientific investigations provide explanation and affirmation for what many teachers and researchers have observed in the classroom, that engagement is central to learning. Neuroscientific research is adding weight to the argument for the validity and effectiveness of images in project-based learning and the teaching and learning protocols of this pre-service teacher education course. Cognitive neuroscience research in the areas of multi-modal presentation and memory; implicit and explicit teaching and insightful problem solving; and the role of the affective in learning, have implications for the use of image in knowledge transmission and investigation, and go some way to provide a physiological basis the power of images as a pedagogical medium.

Neuroscientific research also has some interesting insights for global understanding, problem solving and implicit/explicit learning. Researchers compared problems which can be solved in algorithmic ways to problems which require insight and conceptual knowledge, as is the case with project based learning modelled in this paper. The research demonstrated that brain activity and heart rate were significantly different for insight and non-insight problem solving. Sandkuhler and Bhattacharya (2008) studied four different aspects of insightful problem solving: mental impasse, restructuring of the problem, deeper understanding of the problem, and suddenness of solution. They found increase in neural activity associated with intensified gamma and alpha band frequencies and concluded the centre of activity was the parieto-occipital regions, mainly in right hemisphere. They concluded that there were biological reactions at every stage of insight problem solving and that these had an emotional dimension for the learner. This aligns with the research of Schnyer et al. (2005) in which the brain areas involved in feelings of knowing were investigated. They concluded that these feelings of satisfaction and confidence were based on relative familiarity of the affective recall cue and so emphasised the importance of repeated reference to and application of a conceptual framework.

The field of affective neuroscience is booming as it is increasingly shown that social and emotional factors exert a strong influence on learning (de Jong et al., 2008, Immordino-Yang & Damasio, 2007). As the educational paradigm gradually shifts from teacher-directed to learner-centred, more responsibility for and control over the learning process is passed to the learners. Consequently, affective-motivation processes and self-regulatory processes become more important (Boekaerts, 2003). This research field provides some significant insights for teaching generally, and more specifically, for project-based learning. In this course student are given choice in their selection of global topics that connect directly to their deep personal experiences and concerns.

Since the 1950's the crucial role of limbic structures for memory consolidation and emotional processing has been acknowledged (Kolb and Whishaw, 2008). Dolcos and Cabeza (2002) showed that emotional events were remembered better than non-emotional events. The workshop experience

of this project-based work often elicits affective as well as intellectual encounters. Locke and Braver (2008) found that changes in motivational state may modulate performance through sustained activity in cognitive control regions and so that interest and attitude to teaching resources and assigned tasks have a major impact on learning outcomes. This paper provides examples of student learning to confirm the power of images to enhance memory and learning performance.

The work of Immordino-Yang and Damasio (2007) argues for an even more prominent role of the affective in learning and indeed in social functioning. Their work with brain damaged patients has shown that emotional thought regulates rational cognition and they further hypothesise that emotion-related processes are necessary for the transfer of school-acquired skills and knowledge to real-world decision making and agency. The study of global education to develop active and informed world citizens is modulated by the affective impact of meaning making when undertaking the complex task of creating meaning in images with concise printed text. The learning artefacts have been widely reported as eliciting emotional responses in the pre-service teachers and the vocational applications aim to capitalise on, sustain and enhance these initial affective responses.

Pedagogy and explicit assessment protocols

The assessment in this course serves to enhance the processes of the student project that explores the access and production of affective images from multiple sources. The assessment regime sets up an exploratory framework and has two key stages. The first stage has the pre-service teachers working in pairs or as individuals to conceptualise a curriculum topic that is problematic, personal and has global implications. These are usually those that require classroom discussion due to its complexity or the interpretive nature of the underlying values and beliefs. This assessment requires research and investigation into the ways text and images communicate to the audience and the presentation of their ideas surrounding a number of narrative perspectives. The pre-service teachers then research their selected curriculum topic and locate images and text that support a number of narrative perspectives and their global implications. They then report and present to the class: the conceptualisation of the topic; the identification of different perspectives; the evidence gathered to date and provide a brief explanation of how the evidence (text & images) and will support their identified curriculum topic and explain its global education implications. This stage deepens the pre-service teachers' understanding about the potential of images to represent different knowledge and communicate powerfully to an audience through the affective and critical work of images. It demonstrates the central positioning of visualisation in learning as the activities they engage with using new media "privileges practice over theory, production over critique, formal over ideological, and visual over verbal" (Hocks & Kendrick, 2003, p.5).

The second stage of assessment is the critical manipulation and encoding of images (Sandell, 2009) in the production of the learning artefacts. Through an exploration of images and the media via the web, this approach captures the interest of pre-service teachers, many of whom have no previous learning in visual arts. Pre-service teachers then work with Photoshop technologies and other software to acquire image manipulation competencies. Through the acquisition of the necessary productive skills, and the knowledge of how visual communication produces and transfers the values and beliefs of societies and cultures, the many of the pre-service teachers gain new insights into issues of cultural sensitivity. Figure 2 (below) “*No Vacancy*” demonstrates the affective power of the learning artefact to both capture the student audience through emotional connect and activate their sensitivities to the way media commodifies disaster and human suffering.

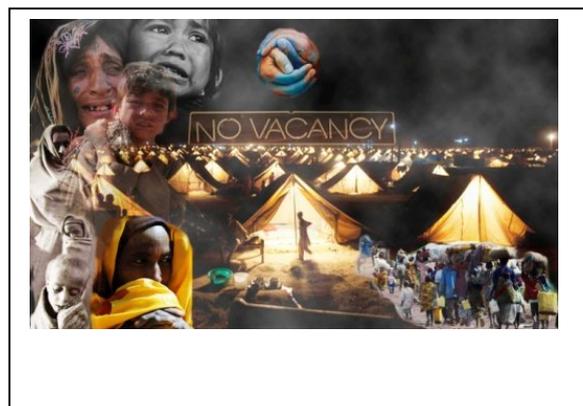


Figure 2. Monique Williams, 'No Vacancy' (2010), digital montage.

The stereotypical images of dispossession, poverty and suffering are used to comment on the effects of war, poverty and displacement. In researching images that can communicate alienation, rejection and loneliness, the history pre-service teacher spent time actually feeling and imagining this experience in order to select the best images to carry this message to the viewer. The pre-service teacher carefully selected and utilized the images of suffering women and children who cover their faces to hide their humiliation and indignity. The long line of refugees and endless tent city highlights the hopelessness and distress of their situation, and this is ironically overlaid with the neon motel ‘no vacancy’ sign. Multi-literacy strategies are employed in the use of intra-textual irony of the ‘no vacancy’ sign. The sign confronts the self-interested and dispassionate approach to this issue of some developed countries. The ‘no vacancy’ sign and global symbol of interlocked hands highlight the barrier to compassion that is reinforced through suspicion and indifference of those who seek to guard their privilege. This work speaks to issues of inequality of power and the imbalance of global resources and is effective in capturing interest. It resonates with the diverse aspects that inform global identities such

as race, ethnicity, class, religion, nationality, territory or inter-generational values. ‘*No vacancy*’ exemplifies the reflexivity inherent in the digital studio practices and how this involves the writing of new narratives about self and others in an empathic way. This course offers a platform where assumptions of self and others can be tested within an affective, cognitive, symbolic and relational learning context.

The learning artefacts are judged by the teaching team and by peer assessment. The artefacts must show evidence of the following: conceptualisation and refinement from the initial presentation; semiotic skills; authenticity to the unit of work; affective and disruptive impact; and a high presentation standard. A quality pre-service teacher learning object will present artefacts that have complex ideas, multiple interpretive possibilities and a refinement in visualisation and conceptualisation of the disruptive narrative that is sophisticated and nuanced. Each narrative perspective should contain the application of semiotics to create multiple layers of meaning using images and text or other semiotic systems with evidenced Information Communication Technology (ICT) and visual digital technical skills. The authenticity of images, text, intention and meaning in relation to the selected curriculum topic together must communicate a global perspective.

Clear criteria and deadlines are a feature of the assessment regime. The pre-service teachers work to two deadlines, a preliminary presentation in the sixth week of the course and the final poster series expo in the final week. The first stage presentations are critiqued by staff and peers as to the level of understanding of both the visual as a classroom tool and the relevance of the topic to their identified syllabus. This presentation has a small weighting in the assessment schedule and is designed to be a motivating experience in which progress and evolving ideas are shared and discussed. In the last session of the course, pre-service teachers display their completed work and undertake a five-minute reflection on the process. The focus here is on celebration of achievement rather than evaluation.

The power of disruptive imaging in learning

The world of images, globalisation, technologies and media are now positioned as a central productive and communicative force occupying many cultural sites. The pre-service teacher artefact example “iNEED” (below) captures the synergies between youth culture, media and post-colonial ideologies and how digital visual learning artefacts can demonstrate new sense-making. This example acknowledges the production of all images, artefacts, or objects as embodying the aesthetic forms, ideas, beliefs and values of a culture.

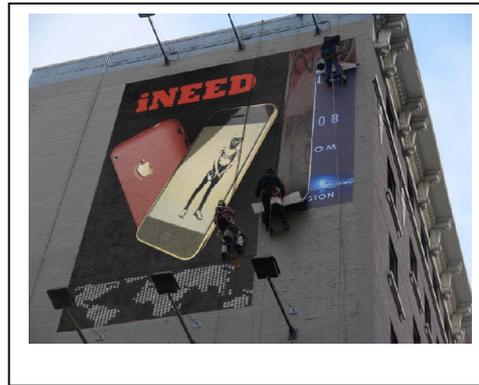


Figure 3. Pheobe Rioden and Lauren Sullivan, 'iNEED' (2010), digital montage.

Figure 3 (above) "iNEED" is the work of a pair of Geography and Economics pre-service teachers and an example of the affective and the critical working together to appropriate the very media devices used to influence and control perceptions of the 'other'. Here they have cleverly utilised the conceit of the billboard to advertise their message in a cityscape. The work subverts popular culture symbols to highlight global inequality. The plight of the disadvantaged in developing countries is contrasted with the consumerism and privilege of the developed world. The "iNEED" cleverly plays with iconic texts from the world of technology and speaks to the trivial indulgences of the wealthy and indifference to the underprivileged. The currency reminds the viewer that although an international problem, this inequality should be a national issue in developed countries such as Australia. These pre-service teachers have created a work that successfully utilises symbolic subversion, image juxtaposition and intra- and inter-textual irony to highlight and question the injustice of global wealth and resource distribution. The disruptive success of this artefact is its double meaning attached to the figure on the iPhone. It alludes to the adoption of the consumerist mission in the third world.

Conclusion

This course is located in the changing landscape of digital new media and the lifeworld of today's youth. The pre-service teacher researches both traditional and online contexts to make informed judgements about the ways knowledge and information are communicated, valued and privileged within new media contexts. They identify and evaluate the effects of deep-seated societal assumptions and dominant ideologies through visual disruption. This develops a more nuanced critical understanding of the present and move towards a transformative vision of the future.

The examples presented in this paper provide evidence that a cross-disciplinary cohort of pre-service teachers can create new images that inform their learner identities. Further these examples demonstrate that pre-service teachers can move beyond the confines of their varied discipline fields to

the exploration of unequal global relationships across temporal, social, geographic and semiotic domains using images. With today's unprecedented challenges including global injustices and climate change, critically-minded teachers need to inspire their charges to envisage, propose and act to bring about the imaginative human responses that the future will need. Cultural sensitivities and global understandings can be nurtured in pre-service teachers through exposure to critical conceptual and productive imaging skills. Through research, experimentation and production of the learning artefacts the pre-service teachers are able to discover a more ocular-centric mode of communication, and gain the skills to create new meaning and gain deeper understandings while traversing global frontiers.

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