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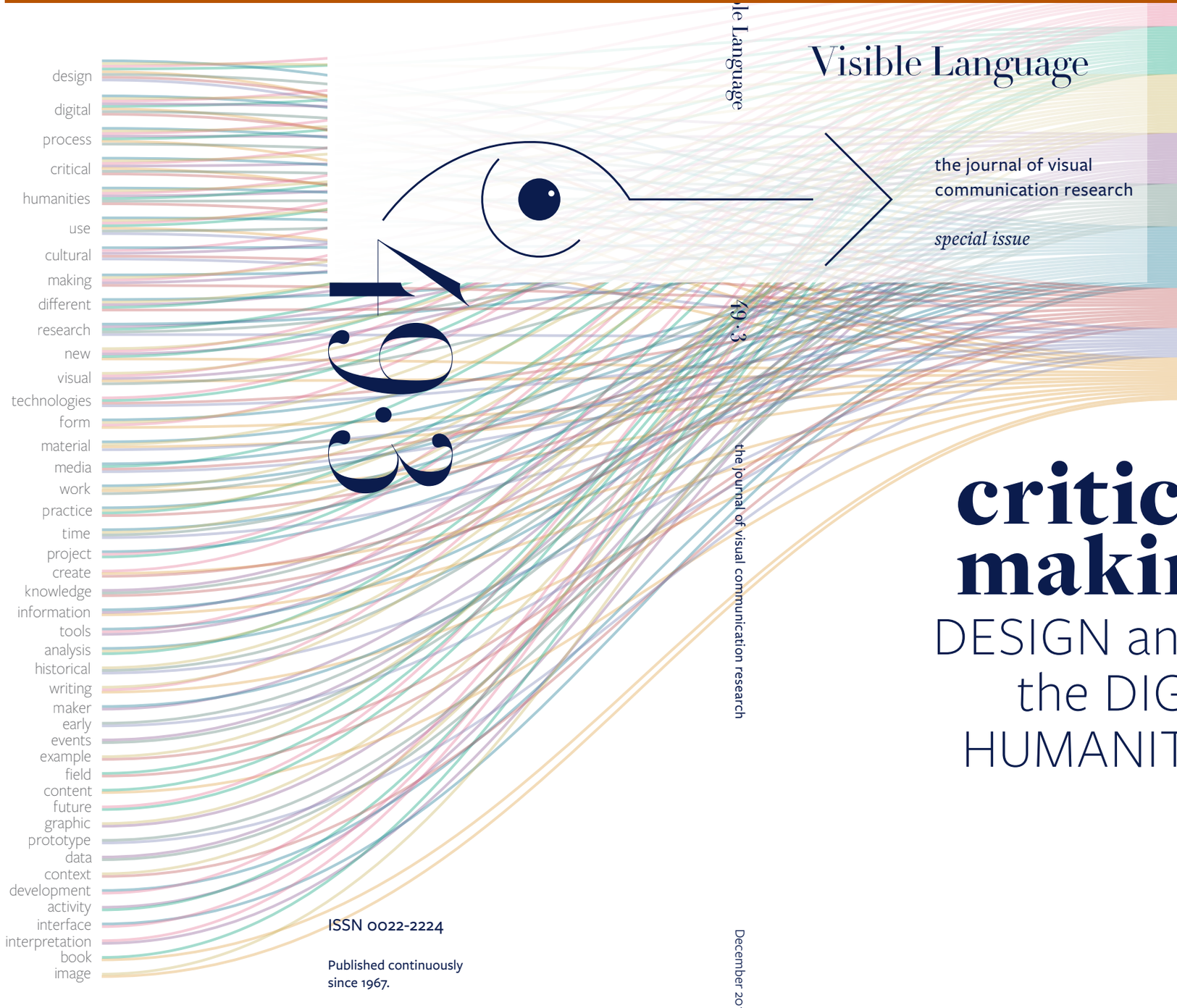

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Meta!Meta!Meta!
Clues. Anomalies. Understandings.
Writing Images
Beyond the Map
The Idea and Image
Critical Interfaces
Making Culture
Prototyping the Past
Book Art

critical making

DESIGN and the DIGITAL HUMANITIES

Jessica Barness
Amy Papaelias
guest editors

December 2015

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critical making
DESIGN and the DIGITAL HUMANITIES

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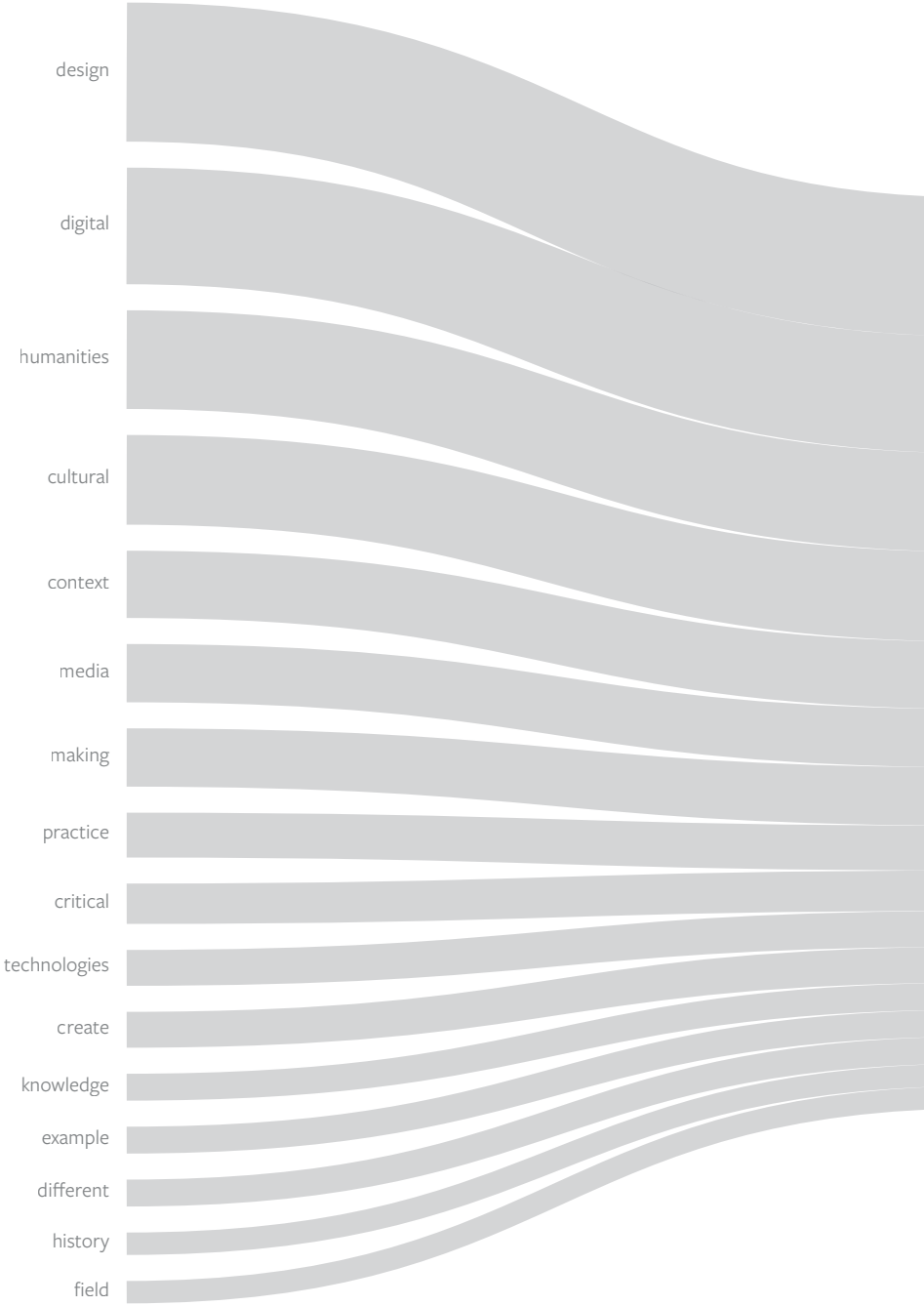
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Making Culture:
Locating the Digital Humanities in India

Padmini Ray Murray
Chris Hand

Abstract

> What is called 'making' in North America and Europe is, frankly, a luxurious pastime of wealthy people who rightly recognize that their lives are less full because they are alienated from material culture [...] All over what is called the Global South there are makers everywhere, only they are not called makers.
>
> (Csikszentmihályi, 2012; p9)

The context for making in the Global South is obviously different to the West. In this article we aim to explore what critical making in India might mean, and in particular how this debate and the practices around it can contribute to the development of digital humanities, particularly in the heritage/public history sector.

We consider two examples in order to demonstrate the role that design might play in helping digital humanities to take account of non-Western contexts. Firstly the Indian practice of *jugaad* — an indigenous combination of making-do, hacking, and frugal engineering — against the backdrop of making/DIY culture, and how local circumstances might shape intellectual explorations through critical making. Secondly we examine the case study of the design of an "Indian" videogame prototype, *Meghdoot*, produced as part of the interdisciplinary UnBox festival in New Delhi, 2013, which was used as an exploratory vehicle for what it means to make a culturally-specific digital game in India.

We demonstrate how cultural specificity and local context, with its emphasis on making culture — as opposed to localization and globalization — can contribute meaningfully to current understandings of the digital humanities, and extend the conversation to the Global South in an inclusive and relevant manner.

Keywords: Global South, India, *jugaad*, video games

Introduction

The practice and theoretical shape of the digital humanities has thus far almost exclusively been determined by scholarly work done in America, Europe, and Australia, which often fails to take into account the cultural, economic, and linguistic implications of what it means to be working in the field elsewhere, especially in developing and low income economies. The inevitable lacunae formed by this absence in the Western academy has meant that historically, the discipline has often been tone-deaf to the noise made by cultural criticism in the mainstream humanities post '68 — as McPherson (2012, para. 16) writes:

> Much of the work in the digital humanities also proceeded as if technologies from XML to databases were neutral tools. Many who had worked hard to instill race as a central mode of analysis in film, literary, and media studies throughout the late twentieth century were disheartened and outraged (if not that surprised) to find both new media theory and emerging digital tools seem indifferent to those hard-won gains.

However, as the discipline matures, Liu advocates that digital humanists should become sharper critics of "how the digital humanities advances, channels, or resists today's great postindustrial, neoliberal, corporate, and global flows of information-cum-capital" (2013, para. 5). Recent work in the field is increasingly self-reflexive about the resource-heavy and expensive nature of digital humanities projects and how there is a need to address this to ensure the discipline is not exclusionary. Concepts such as minimal computing (Sayers & Simpson, 2014) dwell on the dichotomy of choice versus necessity built on the understanding that computing resources in the developing world are not necessarily high performance and that much can be done by streamlining low-cost single board computers, such as the Raspberry Pi, for use in these contexts. Events such as digital humanities hackathons and THATcamps, which are held internationally, create spaces for faculty, students, and often practitioners from the GLAM sector to discuss, incubate, and even implement small projects by building upon or hacking existing resources.

Thinking and doing are crucial verbs that necessarily define the digital humanities agenda as digital resources, cultural products, and artifacts that we build have the potential to "both reify knowledge and communicate it" (Ruecker quoted in Ramsay & Rockwell, 2013, para. 6). If one of the aims of the digital humanities is to create resources that help perform the act of cultural criticism, there must be recognition that the vision guiding such resources is necessarily circumscribed by cultural specificity and particularity. These concerns operate both at the level of content and interface: for example, until relatively recently, much humanities work in Indic languages has been impeded by the lack of optimised character recognition software. Similarly, Reinecke and Bernstein's (2013) seminal work on how cultural perceptions influence our sense of design has shown how Google's struggle to get a foothold in the Korean market was due to local preferences for

more colourful and graphically populated interfaces compared to the search engine's stark white background.

Consequently, the discipline needs to be transposed to fit these different local exigencies; this article will consider two examples to demonstrate the role design might play to accommodate these needs. The first is an examination of *jugaad*, an indigenous form of hacking that differs from its western counterpart in its ubiquity, precipitated by economic constraints and lack of resources. The second is a case study that considers the creation of an "Indian" videogame within a certain design context, comprising of a cultural critique of the digital game (or videogame) in India as well as how the medium itself can be leveraged as a vehicle of cultural criticism and the decisions that influenced its interface and interactions. In our discussion of the videogame, we uncover features such as localisation and internationalisation (tools of homogenisation that obliterate local context), and by extension and analogy, we will demonstrate that the digital is never neutral.

Critical making and *jugaad*

As the digital humanities grows increasingly embedded in university curricula internationally, there is a growing awareness that the creation of a conducive intellectual eco-system for the discipline should be informed by both building objects in response to these intellectual queries and setting the reflexive theoretical paradigms into motion by undertaking these thought-experiments and object lessons. Ratto's formulation of critical making, "a series of processes that attempt to connect humanistic practices of conceptual and scholarly exploration to design methodologies including storyboarding, brainstorming and bodystorming, and prototyping" (2011, para. 9), is a challenge to thinking merely as a "linguistic practice — an internal monologue in which we use conceptual categories to make sense of the world around us." Instead he seeks to link "material modes of engagement and crucial reflection on our technical environments" (2012).

Ratto and others such as Hertz (2012, pp. 4-6) are keen to distance critical making from the maker movement made popular by such publications as *Make*:

> *Make* has done a lot of amazing work in popularizing the field, but it's been sanitized into a consumer-friendly format in the process [...] I draw a lot of energy in my studio work out of rural kludging: creatively using things because you don't have money or resources. Make doesn't really speak to this [...] It's as if "hacking" has been sanitized and transformed into "making"- with politics, activism, tactics, history, economics and social issues removed in the process.

Ratto's critical making lab at the University of Toronto is located in the Faculty of Information, aiming to encourage "practice-based engagement with the pragmatic and theoretical issues around information and information technology" (Ratto, n.d., para. 1). While these are ostensibly also the concerns of the digital humanities, the dis-

cipline's origin story and the trajectory of its growth in the Anglo-American academy had placed the discipline squarely in the realm of literary studies, and it is relatively recently that its logocentric nature has been de-emphasised.

As the digital humanities grows more visible in South Asia, it is necessary to recognise the ways in which disciplinary practices might diverge in these regions, owing to the exigencies of language, rate of technological growth and obsolescence, and different institutional and cultural histories, all of which combine to create an alternative definition of what the discipline might offer. The contours of the discipline necessarily shift with both geographical and intellectual location, and theoretical practice emerging in the Global South has to adapt to different infrastructures, languages, and technologies. This article therefore seeks to add further nuance to ongoing discussions as to the state of the field, and indeed, extend the limits of the discipline itself.

The cornerstone of these investigations is laid by examining the concept of *jugaad* in conjunction with the idea of hacking, especially in the light of critical making, as well as by examining the status of craft and design in contemporary India. The conceptual category of hacking is slightly altered by both linguistic and cultural context: to hack contains within it both the meaning of subverting the authority of proprietary systems through some sort of destructive action as well as to come up with a quick solution, whereas the aim of *jugaad* is almost always constructive, often unaware of the capitalist systems it undermines and is truly born out of necessity. Sekhsaria's (2013, p. 137) formulation illuminates the many connotations of the word as concept:

> The plasticity of the word and range of its usage is evident in the fact that *jugaad* can be concept, process and product all rolled into one at the same time; it means reconfiguring materialities to overcome obstacles and find solutions; it could mean working the system to one's advantage; and it is also used as a synonym in certain contexts for gambling and corruption. *Jugaad* is not just an inextricable part of local vocabularies in India, it is an integral part of the way life is lived and the world negotiated. It is noun as much as it is a verb; an idea and an articulation that has a wide range of meanings and usages that revolve primarily around problem solving or solution finding.

Of course, the practice of *jugaad* is not unique to India, resonating with other instances of "technological disobedience" (a term coined by Cuban artist and designer Ernesto Oroza) found in informal economies of the Global South, such as *Gambiarra* in Brazil, *Rebusque* in Colombia, and *Jua Kali* in Kenya (Radjou et al, 2012; Viña, 2012). However, this informality means that these practices have thus far been outwith formal academic contexts, though following Ratto's provocation — referencing the Frankfurt School notion of critical scholarship — that "criticality entails not just reflection but also intervention in society" (2012, p. 3) might allow us to conceive of digital humanities work in India that could facilitate dialogue between these spaces.

While the establishment of the 19th century liberal arts university was a British strategy to train their Indian subjects for the administrative service, thus seen purely as a utilitarian endeavour, "the contradictions between the educational goal of knowledge for its own sake and useful knowledge had little purchase in the Indian context even during nationalist times" (Sebastian qtd. in Srinivasan, 2013, p. 4). In contrast to this, the history of design education in India owes much to the initiative of the first post-independence Prime Minister of India Jawaharlal Nehru, who, committed to the industrial development of the newly-inaugurated republic, invited the noted American designers Charles and Ray Eames to visit the country to assess the impact that the nascent industrialisation would have on the extensive crafts sector and its small scale industries and to assess the appropriate management of design processes (Chatterjee, 2005; Balaram, 2009).

Their report (Eames & Eames, 1958, p. 9) recommended a research-based approach driven by local designers aiming to understand what values and qualities would be important to Indian citizens, and to identify requirements for a good standard of living (Balaram, 2009). In order to produce these designers, the report recommended the creation of a national design institute, resulting in the opening of the National Institute of Design (NID), India's first modern design school in Ahmedabad, Gujarat in 1961. The initial design curricula and pedagogical approaches implemented at some of the earliest Indian design schools — NID, IDC/IIT Bombay and CEPT — were all heavily influenced by the "Ulm Model", as researched, developed, and (crucially) documented by faculty at the Hochschule für Gestaltung (HfG) in Ulm, Germany, during the period 1953-1968 (Ranjan, 2013). In particular, the already internationally established *Vorkurs* (preliminary or foundation course) as promoted at the Bauhaus also became a staple of design education at these national institutes (Balaram, 2005). However, while the founding faculty members were keen for NID to absorb the best examples of design education from around the world, they were also wary of excessive influence from any particular foreign school — understandable given the perception that the preceding art education introduced by colonial powers during the 19th century imposed Western tastes, destroying the confidence and expression of Indian craftspeople in the process (Balaram, 2005).

While the liberal arts university was responsible for perpetuating a Western, elitist mode of knowledge which was at odds with the lives of the average Indian, design education in India strived to recognise and incorporate local modes of making in its curriculum. Even today, cottage industries and craft communities in India exist alongside small-scale and large-scale production. There is still an emphasis on exposing design students to indigenous knowledge and to connect with rural craftspeople — who might otherwise be intimidated by the arrival of more senior design 'experts' from the urban centres (Balaram, 2005; Kasturi, 2005). While such relationships are not completely uncomplicated (Kasturi has been critical of these kinds of superficial projects "branding" the craft sector, or simply exploiting its makers for the benefit of those further up the supply chain), there is an awareness that a more empathic and

holistic approach is just as much about promoting development as it is about design (Kasturi, 2005; Sen, 1999). As the Eameses put it, apart from learning to solve problems, graduate designers "should be trained to help others solve their own problems" (Eames & Eames, 1958, p. 9).

Local antecedents to critical making can also be found outwith institutional contexts in political resistance to colonial rule, at least in spirit. Bayly (1988) has persuasively demonstrated how the British exploited the talismanic and symbolic qualities of cloth in India in order to create a reliance on English-made goods, thus reducing the indigenous industry to poverty. The consequent backlash in the form of boycotts of British goods and the championing of homespun cloth (*khadi*) implemented by Indian national leaders, by Mahatma Gandhi in particular, laid the foundations of the *swadeshi* movement, which in part contributed to the freedom struggle which eventually resulted in the end of the British Raj.

Thus, the logic of making as critique has a significant history in India and should be taken into account in discussions regarding the emergence of the digital humanities in the region. Shah's recent observations on the state of digital humanities education in India criticises the ways in which it has been adopted by the higher education sector, with an overemphasis on "careers, employability, access and efficiency" (2015, p. 106), but largely omits the significant role that design education and institutions can play in the local development of the discipline. The Grassroots Innovation Design Studio (GRIDS) located at the Srishti Institute of Art, Design and Technology, for example, seeks to adapt and work with "creative, frugal innovation," inspired by the sustainability of modes of *jugaad*, and also work with local creators and innovators to help their work reach a larger audience.

As critical making becomes more accepted as a valid mode of digital humanities inquiry, it seems that the values at the heart of Indian design education, shaped by and cognisant of their local circumstances, suggest an ideal space to pursue such endeavours. In the next section, we will discuss how these qualities translate to the making of a digital artefact that privileges these values.

Unboxing an Indian videogame

There is growing recognition that the videogame market has long been overwhelmingly saturated by American (read: Western) or Japanese perspectives and there have been considerable academic analyses of this phenomenon. For example, Iwabuchi (1998) has theorised that the global popularity of Japanese phenomena such as the videogame character Pokemon is largely owing to its "cultural odourlessness" — meaning while it still comes across as relatively Japanese, it does not carry with it, say, the negative connotations of American neo-imperialist "coca-colonisation." However, the nuances that are missed in this apparently easy transfer from one culture to another are those interventions made by corporate organisations to facilitate this travel: a practice known as localisation. This frequent exercise is undertaken in the videogame industry to hybridise and assimilate the cultural product so it might suit its target audience better. Pokemon, like many other bestselling games of its ilk,

was cut and repackaged for the U.S. market by removing or altering Japanese signs and references to Japanese life and culture and by altering or eliminating violent or sexualised content. Anne Allison has demonstrated American localisers' tendencies toward cultural swapping — typified with Pokemon by the blotting out of rice balls and the rotoscoping in of doughnut replacements (2006, p. 246). Similarly, the practice of internationalisation, which deploys non-specific characters, stories, images, gameplay mechanics to appeal to the broadest possible audience, is executed at source by creators of artistic products, again enabling the smooth migration from one cultural context to another.

The research under discussion in this paper (Ray Murray et al, 2014) was funded by the Arts and Humanities Research Council in the UK and investigates the possibilities of creating an artistic artifact (such as a videogame) that can have global appeal **without** resorting to these practices that dilute cultural heterogeneity, such as lo-

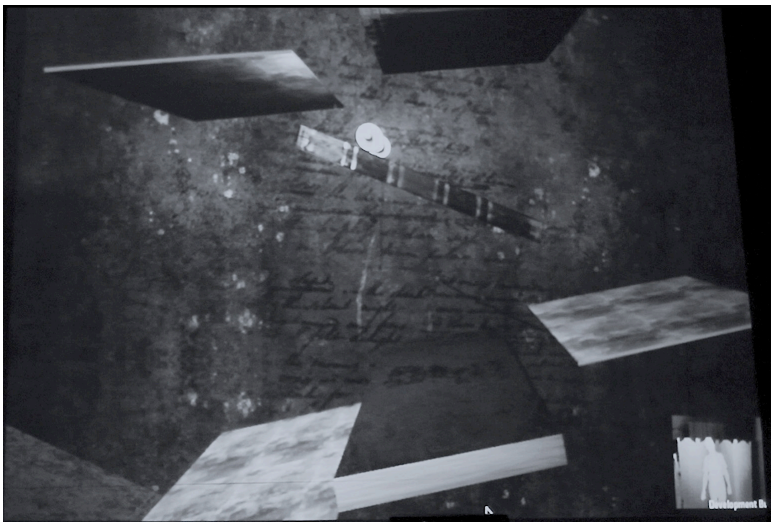

Figure 1. Screenshot from Meghdoot where players have to use their body to roll the scroll-holder, a historical artefact (in the top half of the screen) from book to book to the bottom of the screen. Inset: a player as seen by the Kinect.

calisation and internationalisation. The methodology seeks to collapse the categories between prototype and theoretical position by creating a videogame as a knowledge object that does the cultural work of conveying the status of storytelling and storytellers in contemporary India.

The first author, Ray Murray's role as research lead on the project, entitled *Meghdoot: Using new technologies to tell age-old stories*, was to respond to an open-ended brief which required her to work with a small team of seven (known as the Unplay team) that had been assembled as a response to the call over five weeks, to create a videogame prototype and based out of the offices of Quicksand, a design agency in Delhi, India. This was to be showcased at the Unbox Festival, an interdisciplinary festival bringing together "creative, academic, and development professionals keen on pushing the boundaries of their practice" (UnBox, 2014). Initiated by Indian

Figure 2. Screenshot from Meghdoot where players adopt the position of the Indian dancer in the corner to release letters to populate the typewriter at the bottom of the screen.

Figure 3. Textures and images from Old Delhi used as assets in the game.

design studios Quicksand and CoDesign in 2011, UnBox is indicative of a younger generation engaging broadly with the relationships between people, design, technology and society, while both firms are also players in the push for Indian design to find its own voice on a global stage.

Background and context

Despite India's reputation for excellence in information technology, and being a hub for outsourced animation, videogames based on original intellectual properties created in India are still few and far between. Commentators (e.g. Shaw, 2013) have assumed that industry expertise combined with visual vibrancy, narratives rooted in myth and legend, and the multimodal richness of a certain sort of India, embedded in ethnic otherness, could result in a watershed moment for the nascent Indian videogame industry. Indeed, eminent game designer and commentator Ernest Adams (2009) felt that India's lack of progress in the field could be rapidly compensated for by relying on adaptations of grand epic narratives — and many well-meaning enthusiasts still often suggest that a videogame based on the *Mahabharata* or the *Ramayana* might precipitate the Indian videogame's watershed moment. These assumptions inspired the Unplay team to consider what it meant to make an *Indian* game — whether it was possible to create a videogame that uses markers of cultural specificity in such a way so as to not pander to such expectations.

By envisioning a global audience for the game, the team needed to exercise caution regarding falling into the trap of what Graham Huggan (2002) has called "the postcolonial exotic", especially given these kinds of narratives that have grown up around the potential of the Indian videogame industry. This trope of the postcolonial exotic has been making its presence felt in recent game design — while there is awareness in the industry that a huge audience exists in India for their games, as well as a need for more representation of people of colour — these have been characterised by a series of missteps. As Souvik Mukherjee (2014) has demonstrated, while in *Call of Duty* there is a mission carried out in Himachal Pradesh in Northern India, rendered in exquisite detail down to the quirky signage, the mission itself is a face-off between American and Russian soldiers, without any apparent intervention or even presence of the Indian army. A similarly implausible representation of India is in *Age of Empires III: The Asian Dynasties* (2007), which has Brahmin healers riding elephants and an infantry comprised of *Rajputs*, *Gurkhas*, and *Sepoys*. For those not familiar with Indian culture and history, this can be misleading: the *Sepoy*, unlike the Rajput and the *Gurkha*, is not an ethnic community but the standard name for a soldier in the East India Company's time. The word itself comes from *Sipahi* or *Sipah*, which was a generic term for infantry soldiers in the Mughal and Ottoman armies. Finally, elephants were traditionally used by the warrior class known as the *Kshatriyas*; *Brahmins*, or the priestly class, would seldom be seen near them.

Similarly, other tropes of popular culture are shaped by Western perspectives: Parikka (2013, pp. 1-2), has described steampunk as a suitable emblem for media

archaeology's tendency to draw heavily on the nineteenth century as the foundation stone for modernity in terms of science, technology and the birth of media capitalism.[1] However, most steampunk inflected narratives are set in Western contexts, often eliding the imperialist motivations and colonised workforces that enabled Victorian Britain to build such technologies. Nineteenth century India, of course, was a primary site for such technological diffusion and invention, demonstrating how colonial contact hastened the advent of technologies (such as the steamboats, railroads and the telegraph) and initiating Indian modernity. Marx (1853) famously predicted how such innovations would prove to be a double-edged sword for British rule, empowering and helping to unite a vast country against the colonisers.

Design decisions

In the face of these misrepresentations, the Unplay team felt that it was even more important that the 'Indianness' of the game should act as a corrective — leading us to consider how the game's Indian context informs its narrative and aesthetic design. *Meghdoot* was thus inspired by the allochronic nature of media forms in India — ancient modes of narrative dissemination such as oral storytelling still co-exist alongside cutting edge technologies, for example. This reality challenges Parikka's (2013, p. 2) definition of media archaeology which "sees media cultures as sedimented and layered, a fold of time and materiality where the past might be suddenly discovered anew, and the new technologies grow obsolete increasingly fast," as contemporary Indian encounters with narrative and media forms can be imagined as a media constellation rather than a stratified history. Instead, the vision for the game was shaped by what the team described as "Indian steampunk" which attempted to capture, as Sundaram (2009, p. 3) has described it, urban India's "proliferating media culture mixed with a proliferating city, with its palimpsest of technological infrastructures." Sundaram goes onto describe how India's cities recall the "frenzy of the visible" that characterized Europe after the industrial revolution "except through more intensive, cross-media forms" and the low-cost technologies of mechanical and digital reproduction enabling the subaltern population to access media.

This "frenzy" that has altered Indian landscapes irrevocably is a postcolonial response to the aesthetic of steampunk, for the rapid obsolescence that allows for an archaeology of media as Parikka signposts is not a reality in contemporary India in a *jugaad* culture that constantly recycles and reuses old machinery. Thus the aesthetic template for the game could be described as what Sundaram has called "technologized urbanism." Moodboards were created from photographs taken by the Unplay team on excursions in Old Delhi (see Figures 1-3; 1.04-1.35 minutes, Tzavara "Unplay

1 Steampunk can be described as a sub-genre of science fiction that is set in an alternative history, often inspired by the latter period of the age of steam that coincided with Victoria's reign. The technologies of steampunk are fantastical machines, often hybrids of contemporary technology mashed up with steam-operated or analog devices; its impact on recent popular culture has been considerable — inspiring comics, novels, cinema and of course, videogames.

Figure 4.
Meghdoot at Alchemy in London, where the Unbox Festival was a guest exhibitor.

2013") and textures and visual assets were then drawn from these photographs and used in the game.

The team was also working within considerable financial constraints and so decisions had to be made regarding how the game could be designed in response to its platform and device affordances. The decision was taken early on to work with Unity, an open source game engine, and the Kinect[2], which could be hacked easily to create a motion sensitive game, and the team was influenced by the desire to be as agile and cost-effective as possible given the limited time and budget constraints. The Kinect can detect facial features and recognizes voice commands and physical gestures. *Meghdoot* is mapped across three achievement levels, each of which showcases a different aspect of storytelling: textual, gestural, and oral. The potentialities of the Kinect therefore are to be harnessed to facilitate the different modes showcased: drawing on the gestural vocabulary of Indian dance to activate the device's motion sensing abilities and oral storytelling that can draw on its voice recognition capabilities.

The focus of the game is to encourage players to think about modes of narrative transmission, almost offering a metacritical commentary on gaming as a storytelling vehicle itself. At a very basic level, the story envisioned for *Meghdoot* was simple — an evil dark cloud swallows all the world's stories, and it is the mission of the player to recover them. This cloud messenger is a figurative representation of the cloud as understood in this networked world, an omnipresent, somewhat ominous keeper of the world's data. As commercial cloud services for media and books are monopolized

2 The Kinect is an optional peripheral for use with the Xbox, though the most recent release of the Xbox, Xbox One, has the Kinect built in. The Kinect is basically a motion sensing device equipped with an infrared project and camera, which acts as a hands free controller, allowing users to interact with objects on screen by moving their bodies — unlike its competitor the Wii, which utilizes a hand held controller. While the Kinect has not succeeded as spectacularly as the Wii in the domestic market, it has always been popular with coders because of its open source drivers that allows for myriad uses beyond the gaming industry with applications in medicine, 3D mapping, touchscreen displays, and enhanced interfaces.

by vast technology companies, the game's themes reflect concerns regarding the consequences of such monopolies and the possible repercussions of such hegemonic domination by merchants of culture.

The finished prototype, which had two playable levels, was showcased at three venues: the Unbox Festival in Delhi, India; GameCity in Nottingham; and Alchemy (Fig. 4) in London. At the Unbox Festival, the space allocated to the game was decorated with elements and objects from the game, such as antique chest of drawers that features in the game's initial screen, with counters from the game half hidden in the drawers — so that entering the space itself would create an immersive experience (1.39-1.52 mins. Tzavara "Unplay 2013"). Most of the people who played the game were unfamiliar with the Kinect (footage of players can be seen from 1.53-end, Tzvara "Unplay 2013") but seemed to enjoy the learning curve and the gameplay. Players at all three venues commented on the "Indian" feel of the game and how it felt very different from most games they had played in terms of aesthetics and game mechanics.

The learnings from *Meghdoot* have been useful in a current project that some members of the original Unplay team have gone on to make — a game whose working title is *Antariksha Sanchar*. Based loosely on the life and personality of the mathematician S R Ramanujan, this point and click PC based game is set in a fictionalised version of Madurai. This game is intended for an international market and to be sold commercially. The first author was involved in initial discussions regarding this game that urged considerations of how worlds that might seem foreign and unfamiliar to a global audience might be designed without losing any sense of authenticity. While, obviously, for the purposes of the game, the makers are relying on a suspension of disbelief required by players in order to inhabit a fantastical world, the first author suggested that with subtitles for foreign audiences the language for the game could be Tamil to retain a sense of geographical and cultural location. While the game is still a work in progress, it clearly reflects the commitment to culturally specific aesthetics and game design that was set in motion by the earlier project, *Meghdoot*.

Conclusions

This article has aimed to demonstrate that the recognition of local context and cultural specificity places design at the heart of digital humanities practice. There is, however, an inherent tension between the agenda of the digital humanities, which is to broaden access, and resources that grow out of or in response to local contexts and needs. An excellent example of this is the *Mukurtu* project that was created to allow the Aboriginal Warumungu community of Central Australia "to circulate, view, and narrate materials following their own protocols" ("Mukurtu"). Contrary to most digital humanities projects, *Mukurtu* is meant to cater to a very specific audience, in observance of the community's cultural mores.

Similarly *jugaad*, while having similarities to hacking, should be understood in its culturally and historically specific contexts, which have been outlined in this article, rather than being forced into a Western template forged by the latter practice. These approaches that privilege the local should be seen as extending the limits of digital

humanities practice despite appearing, albeit superficially, to contradict the universalising impulse of the discipline.

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