UNFOLDING INTERACTIVITY:
exploring user power through a visual interpretation model

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Abstract

This design research project focuses on two primary areas of enquiry—the phenomenon of interactivity in digital media design and how ideas from outside interaction design might expand the understanding and application of interactivity within the field. Interactivity is generally seen as the user’s ability to access information. For certain writers and practitioners, however, the idea of interactivity extends to user’s capacity to shape content and meaning, extending the experience of digital media. Using a combination of theoretical discussion and design experimentation, the research explores the second perspective, proposing a model of interactivity that accepts user’s capacities for reflexivity and intervention. Anthony Giddens’s writings on human reflexivity support the idea of the ‘knowledgeability’ of human agents, that is, their capacity to understand the nature of their circumstances and to act upon them. Theories of postcolonial identity argue that visualities produced by diasporic individuals reveal critical reflexivity in the mixing of cultural meanings and materials. The research uses these ideas to conceive how users might experience autonomy, agency and self-determination in digital media contexts.

Taking processes of visual interpretation as a model for interactivity, the research explores how users can exert an influence over subject matter, achieve an enhanced creative experience and ultimately produce their own content. Central to the research is an experimental multimedia program that allows users to imaginatively manipulate aspects of the work of the Chinese poet Li Po (701–762CE). While it mobilizes the
cultural capital of contemporary Chinese audiences, it accepts that the diverse forces at play on these audiences distance them from the plane of meaning as it operated for Li Po. Using the program gives Chinese audiences access to a cultural heritage that is fast being displaced by Western-style media and consumer culture. The model of interaction advanced in the prototype allows for the reconfiguration and conceptual resignification of Li Po’s work, suggesting (1) the capacity to critically negotiate culture and identity and (2) design strategies to create new modalities of richness and complexity in the reception of digital media products. The design prototype provides fresh perspectives on some fundamental questions in multimedia design, namely, what is interactivity and how can designers harness it to create more stimulating and empowering experiences for users?
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Finally, a note of thanks to my family, my mom, my husband and my son, for their love, encouragement and support, and to my dad, who is watching me in heaven.
Signed declaration

This thesis contains no material which has been accepted for award of any other degree or diploma, except where due reference is made in the text of the thesis. To the best of my knowledge, this thesis contains no material previous published or written by another person except where due reference is made in the text of the thesis.

Signed

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Abstract

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Preface

This research project is comprised of a design prototype and a text. The text presents theoretical discussion as the context for design while the design prototype experiments with the propositions raised by the written discussion. The accompanying CD-ROM, located in a pocket in the back inside cover of this document, contains the design prototype, which facilitates visual interpretation of the work of the Chinese poet Li Po through a process of self-directed play. The prototype contains a large amount of images, sounds, motion graphics and pre-created sample files that will need some hard disk space (approximately 300Mb) in order to view the program. For better performance, please copy the entire file onto your hard disk and then double click on the ‘Start me.exe’ icon to enter the program.

On the title page (main screen) of the program, there are ‘load and create’ icons to select in order to start the program. Alternatively, opening the navigation tray on the title page and selecting any set of texts from the poem allows you to start the program. Activating the ‘load’ icon opens a pop-up window. It contains pre-created files made by the author and others who have explored the program. The role of the pre-created files is to demonstrate the diverse outcomes that can be achieved by different people.
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<tr>
<td>CD-ROM</td>
<td>compact disk-read only memory</td>
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<tr>
<td>HCI</td>
<td>Human-Computer Interface</td>
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<td>GUI</td>
<td>Graphic User Interface</td>
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<td>Interactive Multimedia</td>
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Part I

Interpretative autonomy and multimedia design
Most new media programs promise a high level of interaction and a richness of experience, ranging across animation, graphics, music, sound, text and video. The concept of interaction covers the connection between interface, content, computer and user. Implicit in its meaning is the idea of reciprocal exchange between users and content, suggesting that one will have an effect on the other and vice versa. For the majority of digital media designers, however, successful interactivity comes when design elements enhance browsing experience and access to content. According to Carrie Heeter, for example, design should make interaction an easy rather than a difficult process.\textsuperscript{1} Although clarity of meaning, accessibility and ease of use are important elements of interaction design perhaps the real promise of interactivity lies in its unpredictable dimensions. Interactivity can represent an open, creative process of content engagement. Navigation systems, for instance, should not force users into a path-following, choice-making state of mind. This represents a loss of self and limits the range of unfolding, on-screen possibilities. By contrast, Nathan Shedroff contends that the ability to formulate new content or new ways of interacting with content is critical to adding a creative dimension to the interactive experience.\textsuperscript{2} As technology develops it is likely that many more dimensions of interactivity will become available, allying multimedia products more closely to human creative and conceptual capacities. Moreover, the pace and scale of change in information and communication technologies, combined with the possibility and complexity that comes with media convergence, suggest that although the nature of future technology resists prediction, designers must constantly reflect on their approach to interaction if

they wish to harness design to emerging technological capabilities and human needs.

Presently, the fields of usability testing and computer studies, especially Human Computer Interface (HCI), dominate investigations into interaction and interface design, using empirical methods to understand user’s reactions to interface design and to test the effectiveness of specific products. These fields favour the stringent analysis of phenomena without the intrusion of enquirer’s subjective judgments. The rise of scientific methodology in modern, technocratic society has given rise to the tendency to dismiss anything that cannot be open to empirical scrutiny, including aesthetic principles, emotional responses and taste preferences. The broad consequences of this have been the creation of putative rules for interaction design, which insist that designers keep things as simple as possible in the design of the graphical user interface (GUI). Recently, designers including Nathan Shedroff and John Lenker have advanced the idea of ‘experience design’, arguing that for design to be effective as mass communication it must offer more than simple, practical approaches to the presentation of information in a digital context by satisfying audiences at an aesthetic, emotional and social level. Designer’s capacity to invent alternative models of interaction and interface design could open up new possibilities in the use and experience of information technology in an age where knowledge is a vital commodity and society regards the capacity to identify, create and apply useful knowledge as crucial skills.

While technical rationalization has been a force for progress in modernity, writers going back to Max Weber have cautioned that its growing domination has limited human creativity and denied matters of the spirit. Although a goal-oriented instrumental reason currently drives

the conception of usability factors, the affective aspects of interaction are currently gaining in recognition. For example, in *Emotional Design: why we love or hate everyday things*, Donald Norman proposes a theory of ‘emotional design’ by locating the reception of design in the subconscious and in emotional processes rather than rational and functionally oriented directions. For Norman, ‘emotions are inseparable from and a necessary part of cognition’, reflecting research psychologist’s growing interest in the emotional centres of the brain and how they influence a broad range of human reactions and decision-making.

In seeking to understand the potential of interaction design it is vital not to simply fix and control it, thereby limiting the range of human experiences and capacities in the digital realm. Developing new ways of thinking about things often involves the unstructured, untidy processes that emerge from making unlikely connections. In his book, *Educating the reflective practitioner*, Donald Schön warns against seeking obvious solutions to things, arguing:

In the varied topography of professional practice, there is a high hard ground overlooking a swamp. On the high ground, manageable problems lend themselves to solutions through the application of research-based theory and technique. In the swampy lowland, messy, confusing problems defy technical solution. The irony of the situation is that the problems of the high ground tend to be relatively unimportant to individuals or society at large, however great their technical interest may be, while in the swamp lie the problems of the greatest human concern.

Currently, the actual level of interactivity in most multimedia products is limited. This research explores how interface and interaction design can

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5. Ibid., p. 7.
create the conditions under which individuals can experience new levels of engagement with content. In exploring these propositions the research involves a dialectical process of theoretical and design investigation, critical analysis and synthesis around the theme of user power and its scope to shift the focus in interactivity from path finding and selection to the user's potential to create content and modulate meaning. It brings multidisciplinary theoretical frameworks to the discussion of interaction design, believing that to develop new design possibilities it is necessary to ‘think outside the square’ and challenge the fundamental principles and paradigms of a discipline. As Victor Margolin has argued, ‘When issues, rather than methods, are central research concerns, then it is possible to acknowledge different modes of research and give them value in terms of their contributions to a particular question or set of questions.’

The framework for integrating any set of ideas into the research is the overarching research question of how users might experience autonomy, agency and self-determination in digital media contexts through the practice of interaction and interface design. The research agrees that interaction design should continue to deliver effective linking paths and comprehensible information structures but it should also prioritize models of interaction that produce meaningful experiences and empower the user by enhancing the scope for creativity.

While information technology is currently based around technical rationality and the efficiency and effectiveness of content delivery, increasingly it impacts on all aspects of our lives, including our sensory and emotional experiences and the parameters of our imaginations. As such, interaction design should not simply cater to factors like base level cognitive processing and hand-eye coordination but the affective and creative centres of the brain. In proposing an enhanced model of interactivity, the design prototype demonstrates innovative ways

of supporting browsing behavior and forms and levels of interaction, approaching these as a dynamic, productive process. It explores the prospect that design facilitates independent intellectual outcomes and imaginative experiences by encouraging users to work with the materials of a site. This proposition is investigated through the development of an interactive CD-ROM that allows users to visually manipulate elements of the poem ‘Leaving Paidih City early in the morning’ (759CE) by the esteemed Chinese poet Li Po (701–762CE). The prototype is more than an adjunct to the issues discussed in this text, reflecting Daria Loi’s argument that in some ‘[research] circumstances ideas should be expressed and accessed in multiple ways … anomalous formats … [enabling] researchers to convey concepts on sensorial, emotional, and intellectual levels that traditional formats cannot always reach.’

The prototype affords experiences and demonstrates propositions beyond the scope of a conventional thesis, or as Loi succinctly puts it, ‘it can show as well as tell.’ Most significantly, the design prototype allows the reader to experiment with and to observe ‘in-action’ key ideas proposed in the text in the creative and participatory ways the research argues should be the hallmark of all effective interaction design.

In the CD-ROM, interactivity is approached from the premise that users should have scope to exert an influence over content. From choosing pathways to developing individual interpretations, the design allows the user to initiate a range of self-directed actions and outcomes that expand content past what initially exists. This potential defines the texture of a specific creative experience beyond the limited interaction of ‘point and click’ behavior in opening up on multiple levels and encouraging receptive modes of engagement. Poetry is an ideal context to investigate such possibilities since the threads of words, ideas and images in a poem give birth to the unfolding imagination of the receptive reader, providing a

9. Ibid.
10. Ibid.
fertile model of intellectual and creative engagement. Chinese poetry, moreover, begins from a sense of the text and its functions as mutable. Decoding Chinese poetry can require specific knowledge of the genres, conventions and traditions of the text, however, part of that tradition sees the meaning of the text as arising from the interplay between the reader and the range of signs, imagery and meanings in the poem. Taking Chinese poetry as a model of productive co-creation, the design prototype offers individual Chinese users the opportunity to construct and submit personal renderings of Li Po’s poem by making connections between the visual, textual and aural materials provided. It also allows them to view those renderings that have been put on display by other users.

**Interactive multimedia and interpretative autonomy**

The idea of interpretative autonomy grows from the poststructural position that receivers rather than senders construct meaning. According to Roland Barthes’s classic essay ‘The Death of the Author’, writing transcends authorship, emphasizing the reader’s response rather than the author’s intentions.11 As a founding statement of postmodernism, ‘The Death of the Author’ challenged existing ideas about the reception of cultural texts, encouraging an open-ended textuality rather than fixed meaning. For Barthes, meaning is not contained within the text but arises from the play of meanings and conventions in speech and writing. The essay has a number of important metaphysical dimensions that continue to have currency today given the increasing presence of hypermedia environments where both text and knowledge are being redefined as small units of information to be appropriated then transferred into different contexts or combined into different totalities. Barthes argued that an author is not an integral person but a subject

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constituted through society, history and language, or as he put it, ‘the writer can only imitate a gesture that is always anterior, never original. His only power is to mix writings … in such a way as never to rest on any one of them.’

In the aim of liberating writing from the tyranny of authors, Barthes rejected the idea of a purposeful subject as the site of cultural production, giving this function to language:

To give a text an Author is to impose a limit on that text, to furnish it with a final signified, to close the writing … by refusing to assign a ‘secret,’ an ultimate meaning, to the text (and to the world as text), liberates what may be called an anti-theological activity, an activity that is truly revolutionary since to refuse to fix meaning is, in the end, to refuse God and his hypostases—reason, science, law.

In Barthes’s scenario, the author cannot claim authority over a text, ceding the production of meaning to the reader. However, it is important to recognize that for Barthes and other poststructuralists the subjectivity of the reader is likewise constituted in historical, social and linguistic terms. Poststructuralism argues that frameworks of language, culture, knowledge and power fundamentally influence individual subjectivity, creating a range of ‘agency-structure’ issues, as critical theorists and sociologists call them, that are also relevant to interaction design.

They may, in fact, be especially pertinent to interactive contexts, the texts of which, as John Fiske argued as early as 1989, are to a real extent ‘made’ by individual users as they negotiate the web of linked content, blurring the formerly distinct divisions between cultural consumption and production.

12. Ibid., p. 146.
13. Ibid., p. 147.
Poststructuralism sees meaning as generated within language, which symbolically constructs the reality we experience from a storehouse of existing meanings. Judith Butler describes this conception of language as a process of reiteration. She accepts that in speaking or writing individuals conform to established meanings, and other rules and conventions of language, reinforcing the semantic construction of the world and the speaking subject. While the subject does not create meaning, and is largely an effect of the language practices used when speaking or writing, Butler identifies the possibility that new or changed meanings emerge in the process. For Butler, reiteration incorporates inherent contextual shifts of meaning through the specific combinations of meanings and the temporal and social context in which reiteration occurs. She argues that the process of reiteration slowly but inescapably changes meanings, resulting in the continual renovation of language as old meanings adjust and new meanings emerge. For Butler the transformation of language derives from the fact that it is a social system in continuous use, the iteration of meaning through time and space molding the sense of things in ways that nobody can control or predict.

The idea of the openness and changeability of texts and messages has become a fundamental principle in the study of meaning in media and in the responses of media audiences, impacting on the understanding of reception in interaction design. A number of writers have seen the interactive environment of hypermedia as realizing the poststructural position of uncoupling text from determinate meaning. For example, George Landow argues that:

hypertext has much in common with some major points of contemporary literary and semiological theory, particular with Derrida’s emphasis on decentering and with Barthes’s conception

of the readerly versus the writerly text. In fact, hypertext creates an almost embarrassingly literal embodiment of both concepts, one that in turn raises questions about them and their interesting combination of prescience and historical relations.¹⁷

For Landow, the capacity of readers to follow individual paths through information in ways that do not conform to the linear order of printed text models the affect of reading on writing. In fact, Landow’s general hypothesis in *Hypertext: The Convergence of Contemporary Critical Theory and Technology* shows how the model of hyperlinked texts has transformed—or some might argue deformed—the idea of ‘text’ so that today it not only means unitary entities that are read but also chains of electronically linked documents and other diverse signifying materials including text, image, sound and data. Where text in print suggests a passive reader who receives information, it is widely argued that hypertext creates audiences who interact with content and are actively involved in the construction of knowledge.

If textual meaning is now commonly understood as broadly open to change, it is important to remember that Judith Butler argues contingency not intentionality is the main factor in the shift of meaning. Accepting that no meaning is fixed suggests specific ways of thinking about interaction design. If one looks beyond poststructuralism’s radical linguistic epistemology, the ideas of Barthes and Butler encourage software developers and interaction designers to not only acknowledge but to support a process that is inevitable, seeing design not simply as an entity that functions in the service of tasks and information but as something to empower the user by devising more open relationships with content. At the very least, it suggests that the intentionality of the new media designer or developer is no more significant than the

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contingent reception of form and content by the users of interactive multimedia products.

This research, however, is not interested in taking a minimalist position. Rather it argues that rethinking interactivity in digital media design should start from an expanded concept of receptivity that recognizes the mutability of meaning and stresses the knowledgeability and reflexivity of human agents. Poststructuralism’s emphasis on the semantic construction of the subject largely excludes the possibility of human agency, that is, the notion of conscious, reasoning human subjects acting on their own motives in their own interests. There are, however, theorists who take a more humanist position on the question of subjective agency without discounting the proposition that social entities, including language, place limits on people’s ability to act freely and consciously. The British sociologist Anthony Giddens’s 1984 book *The Constitution of Society: Outline of the Theory of Structuration* provides an alternative theory to poststructuralism’s view of human subjects as decentred creations of language, knowledge and power. It contains a pool of ideas for rethinking the nature and processes of interaction, as well as the design concepts and strategies around which they might be built.

Giddens’s ‘structuration theory’—a theory about the production of social structure—provides an important theoretical base for reconsidering the relationship of users to content in new media products. Giddens recognizes the duality of social systems and structures seeing them on the one hand as simultaneously enabling and constraining in serving as the rules and context for human action while their very existence depends on their constant production and reproduction by social actors. Moreover, Giddens argues that in pursuing individual goals human subjects function at a reflexive level, reproducing but also transforming
the social and meaning structures around them. Throughout his text Giddens emphasizes social agent’s ‘capacity for self-reproduction, self- transformation, and self-deconstruction’.\(^{18}\) Somewhat like Butler, his basic point is that social patterns and structures do not exist outside their reiteration. Unlike Butler, however, he emphasizes the active, reflexive character of human conduct, his theory of modernity attributing high levels of awareness to human agents concerning the contexts in which they exist as well as qualities of reflexivity in the way they negotiate those contexts.

For Giddens, the reflexivity of everyday social agents monitors actions and corrects behavior, depending on a practical consciousness of complex social relations in order to judge or adjust actions.\(^{19}\) This extends to the way we construct ourselves and society as a whole. Giddens’s idea of agency encompasses both internal processes and external consequences, suggesting that we shape the world around us both purposely and unintentionally. In shaping the world, we become contributors to that world, his theory of the reflexivity of social actors having important implications for understanding the action of users in digital media contexts. Beginning with the Frankfurt School, many critical theorists have seen the consumers of media texts as constructed through ideology and representation, developing analyses of mass or media culture that are highly critical of its commodification, fetishism and reification of meaning and human experience. In *Modernity and Self-Identity* Giddens discusses the problems of autonomy for the individual in consumer society, depicting the self as a consumer, lifestyle as a commodity and self-activity as a consumer package, the market significantly shaping daily experience.\(^{20}\) But he also argues there are limits to this. While markets simultaneously standardize and fragment experience, individuals develop ways to limit their effects, demonstrating a ‘discursive’—

\(^{18}\) Human social activities, like some self-reproducing items in nature, are recursive. That is to say, they are not brought into being by social actors but continually recreated by them via the very means whereby they express themselves as actors. In and through their activities agents reproduce the conditions that make these activities possible. See Anthony Giddens, *The Constitution of Society: Outline of the Theory of Structuration*, Cambridge, Polity Press, 1984, p. 2.

\(^{19}\) Ibid., pp. xxxiii-xxxiv.

or reflexive and active—consciousness. Giddens’s perspective thus accords a real level of insight and agency to audiences in regards to cultural contexts and materials, his work suggesting the scope for productivity in user’s relationship to content and information architecture in multimedia products.

By highlighting the subject/object problem at the basis of human’s relationship to the world and focusing on the agency of individuals in relation to the structures they encounter in life, Giddens’s work challenges interaction designers to recognize that audiences can experience IMM products through different levels of subjectivity, which might be called discursive consciousness, practical consciousness and unconscious activity, to devise new relationships between the individual user and media content. It certainly suggests that individual users have the capacity to exercise reflexivity when using products and do not have to be herded like sheep along fixed pathways to predetermined destinations.

Scholarship in the field of communications studies, which explores the way users negotiate the media of the World Wide Web through the hyperlink, also supports ideas of active readership and user agency, suggesting that browsing behaviour should not be viewed simply as a set of passive processes. Michael Joyce, for example, defines hypertext as a medium that, ‘embodies information and communications, artistic and affective constructs, and conceptual abstractions alike into symbolic structures made visible on a computer-controlled display’. While these qualities may be implicit in the process of negotiating linked content in new media products, interaction design has a clear role to play in supporting users to initiate a whole range of actions, to structure their own paths through information following their own interests,

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21. For Giddens ‘practical consciousness’ is the inherent awareness of routine forms of behaviour.

determining destinations and outcomes. Paul Gilster highlights the fact that the hyperlink is both a ‘mental process, as well as a digital tool’. However, user’s sense of the productive process involved in making connections and relations in hyperlinked contexts can be lost in the flux of the process. Interface design can highlight the user’s active role in the construction of meaning, which amounts to a degree of control over content. A significant feature of the designed prototype is that it allows users to keep track of their explorations by recording and visualizing them, acknowledging that as users they have the capacity to initiate a certain path of exploration, to revise and change directions, and that these pathways, however fragmentary, are meaningful to them. (Figure 1)

**Diasporic reception and Chinese cultural identity**

So far I have argued that Roland Barthes’s idea of the illusory nature of authorship, Judith Butler’s idea that iteration inevitably and inexorably shifts meaning, and Anthony Giddens’s idea that individuals have the capacities of reflexivity to understand and act upon the structures they encounter in life, suggest the potential for an expanded view of interactivity in new media contexts. Even though these ideas are not addressed to the subject of interaction and interface design they have challenged me to formulate the fundamental proposition of this research, that to fulfill the promise of IMM products should facilitate diverse modalities of meaning and experience. This proposition is demonstrated in the design prototype, which advances a view of interaction and interface design as enabling multifaceted outcomes in contrast to the preponderance of interface design that imposes a unitary and unifying face on information. The prototype allows the user to explore Li Po’s poem ‘Leaving Paidih City early in the morning’, which reads:

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Figure 1 The Feature Construction Panel tracks individual explorations by visually recording them.
Leaving Paidih behind among dawn-tinted clouds,
I return a thousand miles to Chiangling in a day:
Suddenly, no end to gibbons on both banks howling,
My boat’s breezed past ten thousand crowed peaks.

The poem is an ancient one, suffused with Chinese poetry’s characteristic blend of economy, allegory and metaphysics. The anticipated audience for the design is members of the vast Chinese diaspora. While many diasporic Chinese are still familiar with the depth of Chinese cultural tradition, a poem by Li Po cannot mean the same things as when it was written. Diasporic Chinese, moreover, not only occupy very different cultural situations to Li Po and the original audience for the poem but also to each other. The ‘positionality’ of the contemporary diasporic subject in relation to socio-cultural context in a globalizing world characterized by diverse forms of cultural spectacle challenges the possibility of fixed meaning, setting up a model of productivity in cultural interaction that might profitably be transposed onto interaction processes in electronic media.

Feminist, post-colonial and other theories of identity have valorized the critical and imaginative power of decentered subjectivity. Theories of diasporic reception argue that social and cultural context are basic frameworks of meaning, the translocation of cultural materials across boundaries of space, time, race, culture, language and history actively disrupting meaning. For Kate McFarlane, diasporic experience incorporates qualities of syncretic visuality that ‘are multiperspectival and frame-breaking and exist in that provisional and productive site of diasporic inbetweenness.’

She suggests that the reading of culture from different temporal and geographic locations involves the grafting and juxtaposing of multiple modes of visuality. In addition, she argues that ‘this syncretic diasporic intervisuality often displays, through its intercultural mixing

of modes of visuality, an attitude of irony and critique as regards the relations that exist between power, visuality, ethnicity and nationalism.\textsuperscript{25} The ‘multiperspectival’ operations of diasporic cultural reception incorporate a reflexive or creative dimension that shifts ways of seeing and reading cultural objects because the subject is inclined to patterns of interpretation and identification grounded in dialectics of past and present, here and there. The reception of cultural texts particular to diasporic negotiations of cultural identity and meaning reflects the increasing fragmentation and dispersal of points of reference in an era of globalization. Julia Kristeva, in fact, argues ‘we are all in the process of becoming foreigners in a universe that is being widened more than ever, that is more than ever heterogeneous beneath its apparent scientific and media-inspired unity’.\textsuperscript{26}

Structuration theory and ideas of diasporic visuality, that is instances of critical looking bound up in seeing things from a different cultural context, describe orders of reception that go well beyond the basic idea that all cultural materials are intertextual because audiences filter them through their different experiences and cultural literacies. In highlighting the complexity and ambiguity of contemporary subjectivity and the critical dimensions of cultural syncretism, theories of diasporic reception challenge designers to accept the protean nature of meaning production while embracing the creative agency of users in new media contexts as something positive. Designers may agree in principle that interactivity should support a range of on-screen possibilities that shift the emphasis away from fixed outcomes and offer users the freedom to explore in ways that liberate the intellect and imagination. However, the fundamental challenge is to create designs that allow users to understand interaction as productive, to think consciously about the relationships between linked materials and to visualize the unfolding contours of what might

\textsuperscript{25} Ibid.

be produced. The design component of the research addresses these issues by demonstration. It suggests that an enhanced understanding of interactivity and digital communication technologies can be achieved through design prototypes, establishing what Ezio Manzini calls ‘generalisable design knowledge, that can be used by others when and if it’s deemed convenient’.  

The use of Li Po’s poem as the content for the design prototype addresses many levels of the research. Li Po is one of the most esteemed nature poets in Chinese literature. Chinese societies regard culture as a kind of general literacy. Rey Chow argues that, ‘one acquires [culture] not as a skill but as an upbringing in standard written texts and well-aged artistic practices (such as … music, chess, calligraphy and painting …) [that] act to define the limits of centralized culture, even if the practitioners of that culture are dilettantes only.’ The roots of this attitude reach far back into Chinese history. In response to the social turmoil around him, the Chinese philosopher Confucius (551—479 BCE) saw education in the classics as a means for the Chinese to build a better society, Young-bae Song arguing that:  

Confucius saw ‘learning’ (xue) as the essential human trait that made man distinct from animals. Human beings were to be differentiated according to the level of development reached through learning. The course of learning consisted of two parts. The first involved getting thoroughly familiar with the various classics (on poetry, history, rites, music) so as to build up one’s moral character and represented the stage of self-cultivation.

Within the context of Confucianism, the second aspect of learning involved ‘guiding and leading’ others on the basis of one’s learning. In

30. Ibid.
Chinese societies there is a deep-rooted respect for classical culture but one that sits uneasily with the forces of Westernization and modernization. Sheldon Lu argues that first modernization and now globalization have brought about ‘the very undoing of the Chinese historical subject’ to the extent that, ‘Something that formerly appeared to be a singular Chinese collectivity is now an ensemble of heterogeneous, discontinuous, and disjunctive elements’. 31

Many scholars of Chinese literature, both Chinese and Western, extol the value of China’s ancient literary heritage in the name of cultural preservation and continuity. Today, however, consumerism, commodification, mass media, and information and communications technology define the basic experience of many Chinese, eroding allegiance to cultural heritage, though, as Sheldon Lu argues, ‘cultural identity’ has consequently become a primary theme in the ‘postmodern and postcolonial world’, generating ‘a cultural politics of alterity.’ 32 Despite their individual cultural preferences for many contemporary Chinese, classical poetry is a reservoir of cultural authenticity, so well respected as to appear frozen in time. This is somewhat ironic in the case of Li Po, since in his lifetime his nature poetry reflected Daoist values that conflicted with the dominant Confucian worldview.

In both Daoist and Confucian thinking man’s relationship to nature was an important metaphysical and moral model. Young-bae Song explains that, ‘To Confucius the ceaseless operation of nature represented a perfect model for moral action since it engaged in what it had to do without much ado, silently but steadily.’ 33 Daoists avoided action contrary to nature to the point where life became not a reflection of nature but a part of it. However, as Young-bae Song argues, the philosophy of Confucians and Daoists imagined different social outcomes for the individual from observing the laws of nature:

32. Ibid., p. 166.
33. Song, p. 119.
The moral vision of the Confucians stands in contrast to the vision of the individualist Daoist thinkers who place more emphasis on the development of the individual’s originality or personality and on the pursuit of the freedom of the mind. To the Daoists human social systems and social ideologies that back them up are all a form of violence designed to coerce human beings to follow an order legitimizing discrimination and subservience of one human by another.  

Li Po’s work was criticized in his lifetime for using nature as a point of departure for his own imaginings rather than as a source of irrefutable moral standpoints. Today, however, Li Po’s work is revered as an icon of the greatness of ancient Chinese literature. Allowing the user to manipulate the components of ‘Leaving Paidih City early’ in the morning in the context of new media and communications technology opens Chinese literature to active interpretation, highlighting the changed concepts of authorship possible in the processes of interaction. In the process it also aligns that literature to the multimodal textual practices of several new generations of readers, whose literacy is forged to varying degrees from the intersection of new digital technologies and contemporary sociocultural environments.

In seeking to expand the model of receptivity in new media design, Chinese poetry is a useful subject to work with due to its strongly imagistic and metaphorical dimensions, which encourage exploration of the semiotic shifts and multimodality involved in the presentation of information on screen. In addition, Chinese readers have been historically accustomed to applying texts to new purposes and meanings in a process of hermeneutic reading. It is implicit that the Chinese reader interprets poetic texts according to their perspectives and circumstances.

34. Ibid.
with full understanding that the text may be operating from within a different plane of meaning, emphasizing conscious interaction between the realm of the text as it was written and the sphere of the reader.

In the time of Li Po this process of active textual interpretation intersected with wider attitudes to nature. Under the influence of Taoist philosophy, Tang Dynasty intellectuals, Li Po being one of the best examples, saw nature as a metaphor for human existence, regarding its metaphorical decoding as the highest way to understand metaphysical questions. The practice of wandering the countryside to reflect on important philosophical ideas using nature as a point of contemplation was well-established in Tang Dynasty literary society. Engagement with nature is a central element of Chinese poetic creativity, becoming the principal literary subject matter in the Tang Dynasty. Guan-Cheng Chu argues that, ‘the subject of poetry, transferred from human to nature, liberates the imagery in poetry. It not only increases the creative subject but gives more depth of meaning to poems … [the discovery of nature] is an important event in the history of Chinese poetic development.’\(^{35}\)

In the context of the poetic Chinese readers are thus ascribed a co-creative role, where transformative engagement with the text is not just permitted, it is expected.

Li Po portrays nature to celebrate its beauty and consider its inner motivations and implications, challenging readers to actively explore the deeper meanings of the nature imagery in his work. Taiwanese citizens, as a representative diasporic community, are taught this hermeneutic process at primary and secondary school. Although applied somewhat mechanically, the general literary education provided in Taiwan establishes a cultural attitude to reading where the text is understood to operate on multiple levels, suggesting a more diffuse model of authorship.

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These tendencies are emphasized in the design prototype where the translation of Li Po’s poem to the new media context facilitates open-ended play with the elements of the text to achieve a range of creative or reflexive outcomes. The model of interactivity allows users to move between text, image and sound, transcending the notion that text and meaning are linear, the product of single authors or even composed of like materials. The interface allows both formal and conceptual reworking of the elements of the poem while permitting the user to readily shift back and forth between elements, accelerating, as George Landow argues, ‘the usual process of making connections’ between separate forms and bodies of information.36

For Landow, increasing the range of pathways through interactive multimedia allows users to be less constrained in the process of reception, fulfilling Mikhail Bakhtin’s idea that there can be no sense of completion in culture because any point of resolution is already intrinsically open to change.37 In new media contexts, this sense of ‘open-endedness’ can be more or less apparent depending on the designer’s treatment of form, content and the interaction process. Program content can be presented hierarchically or so that no element is privileged over any other. By providing flexibility and options for individual users and allowing users to visualize where they have been and what they have done, the design prototype aims for the latter, believing that meaning structures in IMM only exist when users act upon them productively and consciously. In particular, the linearity of the text is replaced by reading for points of interest, the interface design enabling users to have control over the reading process, selecting those parts of the poem that are significant or relevant to them while allowing them to be arranged and manipulated to form a new ‘text’ according to their individual preferences and understandings.

37. Ibid., p. 59.
Part II

Interactivity in the context of new media debates
In the field of digital, computer-based media, writers and practitioners use the term ‘interactivity’ to refer to everything from passive exchanges with content to active, computer-mediated creation. Generally, however, active participation is the goal of the interaction process, many extolling interactivity for its emancipatory potential despite the fact that the term is poorly defined and arbitrarily applied. Although the scope for users to exert influence over content is widely seen as an ideal, what this implies for interaction design is unclear. Lev Manovich, for example, argues that despite contrary rhetoric many of the interaction processes in new media contexts are dictatorial, capturing users and their actions in a fixed system of hyperlinks that impose pre-ordained behaviours. For Manovich, what is described as active engagement and open-endedness is closer to compulsion and the externalization of cognitive processes.

The idea of interaction certainly suggests the potential for experiences based on the individual’s creative and productive engagement with media, a concept here defined as ‘user power’. However, the lack of a developed or consistent definition of interactivity means designers have little conception of what user empowerment might be. In this section I outline the range of ways in which interactivity is explained in the fields of HCI and design for digital, computer-based media in order to identify basic shortcomings in the understanding of the principle. The literature on interaction reveals that many writers wish the nature and role of interactivity to be more expansive than it currently is. Ideas such as ‘meaningful interactive experience’, ‘user creativity’, ‘active participation’, ‘co-creation’ and ‘open-ended information structures’

represent the most progressive conceptions of the term in the new media domain.\textsuperscript{39} A range of writers also contend that the emphasis on functionality narrows the sense and potential of interactivity.\textsuperscript{40} In the main, however, the discussion of interactivity is one about functionality, concentrating on whether point and click behaviour, navigation systems and linking pathways ensure clarity and efficiency in the reception of information in IMM products.\textsuperscript{41} The aim in this section is to consider whether these discussions place sufficient emphasis on how interactivity is experienced by users and the scope for user agency within the context of the interface, especially in the sense of facilitating interpretive autonomy, productivity, creativity and engagement within use.

**User agency in Interactive Multimedia**

One of the most desired goals in new media is that users actively manipulate media and information, eliciting a ‘high’ level of interactivity. As outlined above, various writers have seen the idea of interactivity as reflecting poststructuralist theories of textuality, particularly in the sense that negotiating hypermedia changes users of new media from passive

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\textsuperscript{39} Steur defines interactivity as ‘the extent to which users can participate in modifying the form and content of a mediated environment in real time’; Snyder focuses on the ways in which the non-linear nature of hypertext enhances interactivity; O’Keefe notes the Web provides a two-edged sword in which people can tell their own story in their own words. See Sally J. McMillan and Edward J. Downes, ‘Defining Interactivity: A Qualitative Identification of Key Dimension’, *New Media & Society*, Vol. 2, No. 2, 2000, pp. 157-179.

\textsuperscript{40} ‘Today, we do not operate computers; rather, we interact with them, and successful digital artifacts are designed to be experienced, not simply used. The term user is unfortunate (but now unavoidable), as if we were habituated or addicted to the artifact. Good digital designs do not addict; they invite us to participate, to act and react. To design a digital artifact is to choreograph the experience that the user will have. If design is too restrictive, the choreography too heavy-handed, the experience may alienate the user. (The whole genre of computer-based training is heavy-handed in this sense.)’. Jay David Bolter and Diane Gromala, *Windows and Mirrors: Interaction Design, Digital Art, and The Myth of Transparency*, Cambridge, The MIT Press, 2003, p. 22.

\textsuperscript{41} ‘…a computer human interface is a “means by which people and computers communicate with each other”. One can make an analogy between a computer system’s GUI and a car’s steering wheel. The wheel directly binds the driver to the operation and functionality of the vehicle. When driving, a driver should not have to concentrate on the steering wheel. In the same way, the GUI binds the user of the computer system to the operation and potential of the computer system. A good GUI design removes the impediment of communication with the computer system and allows the user to work directly on the problem at hand.’ Bernard J. Jason, ‘The Graphical User Interface: An Introduction’, *SIGCHI Bulletin*, Vol. 30, No.2, p. 42.
receivers of information into ‘agents’ actively involved in knowledge construction and the shaping of their own meanings and experiences. The idea that users can initiate actions in the multimedia context by steering paths through media to select a focus for examination is seen as central to the socio-cultural significance of information technology. Tony Feldman, for example, argues that, ‘interactivity offers the potential to create a new era in information, entertainment and education. Through interactivity, once dull, passive experiences will be transformed into something infinitely richer and more compelling.’ Feldman’s enthusiasm for new technology imagines its potential to produce new levels of human experience, far surpassing the one dimensionality of print, even though readers of traditional texts have always had the choice of randomly browsing through a text and the potential to leap off from the words on the page into the realm of the imagination. Print-based reading and writing are also ‘multimodal’, requiring, as Carey Jewitt argues, the interpretation and design of visual marks, space, colour, font or style, and … other modes of representation and communication.

In the rush to exalt what is new and unique about IMM the question of whether it in fact represents a definitively ‘new’ form of content presentation and experience is not properly interrogated. The claims to newness and uniqueness often eclipse what is shared with old media and the qualities that continue to make them important mediums of culture and communication.

New technology is not in itself transformative in the ways Feldman suggests. Enhanced user experience in IMM depends on how technology is applied and how interactivity is developed. For example, the ‘activeness’ of interactivity is often seen as fundamental to the quality of user experience. Writers use the term ‘activeness’ to identify a powerful level of user engagement with media and content, greater

42. See, for example, Lister and others, pp. 20-21.
user choice, individual operation of the media and a more independent relationship between the user and the source of information. The notion of an ‘active’ IMM experience sees the ‘user’ as a ‘participant’ in the production of meaning and experience, suggesting not only the ability to independently navigate the digital world but also the capacity to manipulate new media content. Yet the freedom to ‘click and choose’ does not ensure a productive, two-way relationship between the user, the multimedia environment and multimedia content despite such ideas being implicit in the idea of interactivity.

Certainly, at the level of ‘click and choose’ users determine individual destinations as they explore content so that each use of a multimedia product differs in some way from the next. Yet, as Brenda Laurel argues, ‘something is [only] interactive when people can participate as agents within a representational context’. Laurel’s stress on user agency emphasizes audience’s ability to engage with IMM products in an intentional and meaningful way. For Lev Manovich, interactivity hinges on the specificity of the interactive experience. He argues that, ‘New media objects [should] assure users that their choices—and therefore, their underlying thoughts and desires—are unique, rather than pre-programmed and shared with others.’ As active participants users should have both the scope to choose individual pathways and the capacity to modify form and content in ways that reflect their needs, interests and intellectual autonomy. This level of participation implies that the roles of sender and receiver are in some ways interchangeable while activeness emphasizes the creative potential of users, suggesting that the outcomes for individual users are more important than the functionality of digital media in determining interactivity. The goal of active participation, however, is a significant conceptual leap from the now rather tired idea that clicking through a set of links, a process

45. A world cannot emerge from a text without an active process of construction, a process through which the reader provides as much material as she derives from the text...The reader of fiction is always an actively mediating presence; the text’s reality is established by his response and reconstituted by his active participation...’ Marie-Laure Ryan, ‘Immersion vs. Interactivity: Virtual Reality and Literary Theory’, http://muse.jhu.edu/journals/postmodern_culture/v005/5.1ryan.htm.
that in reality can be highly disorienting for the user, changes the user’s position in relation to media content to one that encompasses authorship, creativity, productivity and empowerment.

The notion of active participation in interactive media gives rise to the idea that users can be co-creators through their power to order and manipulate content. Acting on the potential of user agency to this degree is typically only a goal in interactive art. As a philosophical imperative, interactive art involves direct exchange between the artist, the digital work and its audience, net artists using the web as a platform to create multimedia works that allow different outcomes for each user. Interactive art builds on vanguard traditions of participatory art such as performances, events, happenings and installations that allow the viewer to become part of the action. Margret Elisabet Olafsdottir, a curator at The National Gallery of Iceland, argues that interactive art aims to have audiences become active participants in the creative process in contrast to the position of the traditional art audience, expected to stand in solemn contemplation of works of art.\(^{48}\)

While interactive art challenges traditional ideas of authorship through the idea of collaborative creation, in actuality net art often has limited scope for users to develop independent works of any significance. Many such hypermedia works produced since the rise of new media and the Internet have fixed paths, with the user only able to determine part of the outcome. Ann-Sargent Wooster argues that:

> The current romance of interactivity promises such things as being a better or more democratic art form and/or the art form of the future … Yet interactive videodisks do not empower the user to create a wholly new work with the materials they are given, and

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\(^{48}\) Margret Elisabet Olafsdottir, 'Art and Interactivity', http://www.multimedia.hi.is/lecturers/margret_art_interactivity.htm.
they only appear to eliminate the alienation of the artist and viewer present in most avant-garde art.\textsuperscript{49}

For Wooster, the activeness of audiences is of primary importance but what has been presented as activeness and participation in interactive art more closely resembles ‘pseudo participation’, characterized by token involvement in pieces where in reality there are only participant-performers and accidental spectators.\textsuperscript{50} It has become equally clichéd to see new media as affording users unprecedented agency and creativity. However, if enhanced user engagement is not achieved in interactive art—when it is often the fundamental aim—the situation is even worse in other online and interactive contexts. There the relationship between users and interfaces or users and networks rarely extends beyond path selection through pre-set point and click options in a menu.

For Nathan Shedroff, what defines agency in interactivity includes the degree of control users have over tools, pacing and content, the amount of choice this control offers and the user’s ability to employ tools or content to be productive.\textsuperscript{51} Shedroff advances the idea of the ‘four spectrum’ interactivity experience in multimedia applications, these being (1) control and feedback, (2) productivity and creative experience, (3) adaptive experience and (4) communicative experience.\textsuperscript{52} Shedroff reasons that interactivity should allow users to function independently and to share in making something. He argues that most people find creating something interesting, entertaining and fulfilling, even when they are merely filling in time, adding that in the context of IMM developing the tools and structures for creation is fundamental to producing meaningful user experiences.\textsuperscript{53} Where users shape their experience by independently manipulating components, multimedia products engender a more compelling and fruitful experience. Shedroff,

\textsuperscript{50} \textit{Ibid.}, p. 159.
\textsuperscript{51} Shedroff, p. 283.
\textsuperscript{52} \textit{Ibid.}
\textsuperscript{53} \textit{Ibid.}, p. 284.
in fact, believes that if the aim is creativity, interactivity must extend to the potential to add new content or values to the initial set of components and characteristics, allowing the product, toolset or database to be ‘living’ and ‘evolving’.54

John Lenker takes a similar stand in *Train of Thoughts: Designing the Effective Web Experience*.55 When discussing the place of creativity in the interactive experience, Lenker argues that the scope for creativity prevents such experience from becoming mundane and cognitively blurred, the potential to be creative or productive keeping user’s minds activated and engaged in the ‘flowpaths’ through information.56 Moreover, Lenker stresses that ‘the essence of creativity lies not in the specific qualities of a design, but in the fact that it introduces something unique and juxtaposes it to the other stimuli in the sea of that which has become perceptually, cognitively, and emotionally mundane.’57 Lenker effectively argues that the ‘page after page after page’ information structure of many websites, and by implication CD-ROMs, diminishes the interactive experience by lowering user’s motivation to engage with content. Throughout his text Lenker suggests ways for the designer to achieve conceptually rich and intellectually meaningful interactive experiences in the development of IMM products, highlighting the limitless possibilities that IMM offers to stimulate the creative engagement of users.

**Interactivity as efficiency**

While new media artists and theorists speculate on ways to make audience members more active, a body of literature from the field of information design examines interactivity from the perspective of information architecture, where the friction between clarity of design and the productive engagement of audiences marks discussion. In many

55. Lenker, p. 155.
texts ‘simple’ information structures are seen to ensure the quality of all interaction with content, interaction being understood as the comprehensibility and ‘browsability’ of content. Although it is possible to argue that the most valuable human experiences are never simple, from a usability perspective the classification, ordering and presentation of data through hierarchical navigation, labeling, indexing and searching systems are seen as the glue that holds an interactive product together, ensuring the ultimate goal of ease of use. Usability experts like Jakob Nielsen insist that the most important consideration in interface design is functional efficiency. Emphasizing the modernist mantra of clear communication—which is endemic to the field of usability—Robert E. Horn defines information design as the art and science of preparing information so that human beings can use it with efficiency and effectiveness. The primary aim of information architecture in an interactive context thus becomes the presentation of information so that it is rapidly and accurately retrievable, easily comprehensible and simple to translate into action. An associated demand is that the virtual, three-dimensional space of the IMM product is perceived as coherent and consistent.

The philosophy of information design stresses that users are looking for information first and foremost, privileging communicative purpose. Jakob Nielsen, for one, sets strict frameworks for page layout, typographic specifications and the size and number of images to achieve such goals, seeing interaction principally as a task oriented and ‘performativ’ operation of hand-to-eye coordination. The HCI community likewise sees visual acuteness as ensuring the usability of the GUI while determining the quality of the interaction between human operators and technology. Bernard J. Jason suggests that a good GUI allows a computer user to move effortlessly from application

59. Ibid.
to application, reducing the idea of interaction to one of simple use. For Jason, the purpose of the GUI is to allow users to concentrate on the primary cognitive task. It thus follows that ‘good’ interface design makes an application easy, practical and efficient to use, determining the marketplace success of interactive products.⁶¹ From the broad HCI perspective, the user should not be especially conscious of the graphical user interface, which should function transparently in revealing a program’s major content, an interface that is easy to use leading to significantly higher productivity and reduced stress for computer users.

Jay David Bolter argues that, ‘HCI aligns itself with the social sciences in using qualitative and quantitative methods to come up with principles of good design.’⁶² As a discipline HCI sees the user largely as an extension of the computer, negating the value of design thinking that seeks a more interpretive or productive role for the user. Much, of course, is written on the Eurocentric values of instrumental reason implicit in the understanding and development of information and communications technology around functionality, usability and clear communication.⁶³ The basic clarity of information structures may speed access to content but represent an impoverished view of information forms and interactive experiences. The HCI model of interactivity relates more closely to user’s efficiency with computers. The level and range of opportunities for interaction afforded by interface design is taken as the measure of its functionality, suggesting that the relationship between users and the computer environment is not reciprocal, interactivity being seen as a product of the system rather than the achievement of positive outcomes for users beyond the idea that they can do things more efficiently.⁶⁴

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A broader view of interaction, based on the concept of user power, sees the potential for new creative and communicative relationships between digital, computer-based media and users while seeking to develop interaction principles that take into consideration individual user’s specific needs, preferences and interests. Various writers promote ‘open-ended’ information structures to improve user participation in new media programs. In fact, Jim Gasperini actually identifies the depth of narrative ambiguity in hypermedia works as a measure of their quality and richness. For Gasperini, exemplary interactive work should avoid user passivity through a measure of structural uncertainty and openness, allowing users to be creative through alternative possibilities of choice and consequence played out over time. Structural ambiguity and open-endedness are here seen to determine the scope for imaginative experience in digital, computer-based media, aesthetic reconfiguration and new meaning emerging from the process of freely exploring what products have to offer. However, while early scholars of new media like George Landow saw hypertext as a concrete expression of poststructuralist theories of the ‘writerly’ reader, as programs have become more technically complicated this capacity may no longer be implicit in products. Victoria Carrington and Jackie Marsh nonetheless argue that ‘digitextual practices’ have blurred ‘the distinctions between writer and reader, producer and consumer and require a complex range of skills, knowledge, and understanding, a fact which is often overlooked by those who seek to suggest that these practices are inferior to traditional literacy pursuits.’

The non-linear connection of diverse forms of content suggests IMM’s creative and productive potential, though when compared to the

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65. ‘A high degree of interactivity is characterized by the user having the frequent ability to act, having many choices to choose from, choices that significantly influence the overall outcome.’ Jens F. Jensen, “Interactivity”—Tracking a New Concept in Media and Communication Studies', in Paul A. Mayer (ed.), Computer Media and Communication: A Reader, New York, Oxford University Press, 1999, p. 177.


67. Ibid., p. 305.

68. Landow, p. 32.

imperative of clear, efficient communication the idea of open-ended information structures suggests confusion and a lack of resolution. Janet Murray argues, however, that humans possess narrative intelligence that can readily configure diverse, multimodal materials in ways that are personally meaningful.70 Murray’s discussion of the personal narrative possibilities offered by the hypermedia format builds on the pleasure and empowerment people derive from the interaction processes. For Murray, an ‘open’ hypermedia environment allows users to approach content as an expanding sequence of possible configurations and interpretations, offering the potential for scenario enactment and providing a powerful engine for personal creativity.71 Beth Cross, for example, has undertaken a study into ten-year old boys who create intricate, multifaceted stories in the context of game playing, stories that are produced collaboratively with the content of the game and which demonstrate their scope for ‘split-frame thinking and multiple scenario awareness’.72 By contrast, hierarchical media environments that limit user involvement with content prevent new experiences and unfolding relationships between users and media technology.

Understanding navigation and information architecture as a non-linear narrative is one way to achieve openness of structure and meaning in digital media contexts. For Carles Thomàs i Puig:

Networked interactive communication systems based on hypermedia produce a type of cultural product that is not read linearly; rather, it is organized in a structure that is oriented towards connecting and integrating different pieces of knowledge. They are different from approaches in which authorship and management are centralized, as they develop processes of communication in which people participate, in which the communicative materials

71. Ibid.
can be "experienced". These systems bring culture closer to what we might call the "open-ended" approach.\textsuperscript{73}

For Puig, such structures have an emergent quality, implying the potential for unique outcomes that did not exist before the individual user set them in train and which go beyond those imagined by developers and designers. To see users as participants in interaction and avoid designing for generalized patterns of use, IMM designers and developers need only reflect on the range of separate users seated in front of their individual computer screens.\textsuperscript{74}

In commercial web sites the scope for heightened user powers not only conflicts with functional goals but also the highly expedient purpose of interactivity. Stephen Atkinson and Helen Nixon argue that while providing scope for interaction, strategies like 'the download, the competition, the online poll, or feedback form' serve as 'an effective central point for amassing and tallying the data received with each interaction.'\textsuperscript{75}

In such circumstances, a model of interactivity as market research and surveillance supplants any scope for interactivity to enhance mutuality and personal creativity. The value of interactivity to users thus becomes dubious, data on their interests and browsing behaviour being traded for the potential to be linked to an array of interconnected products and services.\textsuperscript{76} It is often argued that once people have discovered interactivity, they are not satisfied to go back to 'passive' entertainment forms such as television or narrative film.\textsuperscript{77} Designers of commercial web sites, however, are under considerable pressure to exploit or manipulate audience tastes and desires, while the tendency of capitalism to dominate and limit human creativity by increasing the sameness and uniformity of culture and society has been much commented on. In such circumstances designers are rarely challenged to consider

\begin{footnotesize}
\textsuperscript{74} Atkinson and Nixon, p. 395.
\textsuperscript{75} Ibid., p. 402.
\textsuperscript{76} Ibid., p. 403.
\end{footnotesize}
the relationship of interaction processes, information structures and media content to human creativity, individuality and uniqueness, even though a progressive approach to IMM should enhance the quality of online experiences.

To briefly summarize, I have argued that interactivity is defined in only very general terms in new media discussions, remaining an elusive if promising concept. The more advanced ideas of interactivity broach themes of activeness, participation, co-creation and open-ended structure. Each is helpful in expanding the understanding of interactivity in IMM but such discussions rarely extend to how designers might approach interactivity in actual terms. Of the four concepts, open-endedness in the interaction process presents the best prospect for enhancing user power in IMM, suggesting the potential for agency and autonomy through the absence of over-determined conceptual orderings. The preceding discussion also speculates that the best way to evaluate interactivity is not through task analysis—which implies the user’s role as a functional extension of IMM products—but rather through the scope for creativity and the presence of indeterminacy in such products. The remainder of this document discusses a model of open-ended and productive user engagement by considering the patterns of reflexive looking bound up in diasporic visuality, the complex, contingent and changeable outcomes ensuing from playful exploration of cultural identity demanding design strategies that foster agency and perhaps even authorship.

Although the exploration of cultural identity may seem somewhat removed from the more usual commercial and informational applications of interface and interaction design, identity is a fundamental issue in the use of information and communications technology. Anthony
Giddens argues that the contemporary world places people in such diverse circumstances and varied relationships with one another that every situation alters the sense of self. The implicit tension between the virtual and the actual in using ICT would seem to be a primary example. Coincident to the contemporary erosion of the sense of self (and place), screen-based technologies and communication have multiplied the opportunities for individuals to explore and perform identity, Jennifer Gonzáles pointing to the countless number of online sites that allow this. Gonzáles stresses how in these virtual environments visual icons commonly known as avatars become the primary means for visitors to represent themselves, revealing ‘a common set of identificatory fantasies’. The design prototype takes what is already an established set of practices in the virtual realm—the construction of identity through the selection and manipulation of visual images—but provides a work of culture and the imagery associated with it as the medium of exploration. Integrating Chinese literary concepts with the practice of interaction and interface design provides a way of reconceiving digital artifacts in a world increasingly characterized by globalization processes and technological convergence, the exchange between a deeply rooted cultural tradition and new technology representing a novel working process in a world where dispensing with things takes priority of their preservation.

**Diasporic reception as a model of enhanced interactivity**

In an age of globalization meaning is inevitably negotiated between cultures. While there are inherent cross-cultural implications in the translation of traditional Chinese poetry to a multimedia context,
globalization challenges designers to draw on the diverse sources of knowledge and understanding encapsulated in different cultures in order to expand on general understandings of design. Benny Ding Leong argues that ‘homogeneous Western design thinking should be revised and reoriented’, believing that ‘traditional Chinese creative thinking might provide [such] an alternative.’ 82 There are many instances of non-Western ideas being used to challenge Western culture, to extend its intellectual and creative development and inspire innovation. For example, in the late 1950s the experimental musician John Cage challenged radical artistic values through two separate streams of Asian thought. Cage took inspiration from Zen in using the sounds of everyday life to reject the oppressive seriality of vanguard music. 83 The I Ching—the ancient Chinese book of divination by chance processes—inspired Cage to use chance to contest values of conscious aesthetic decision-making. Cage’s interest in East Asian culture was as an intellectual Other to re-energize Western art. He did not explore Zen or the I Ching on their own terms or for any issues they raised for Chinese culture. This project is somewhat different. Certainly, it uses a cross-cultural mixing of aesthetic and thought traditions to explore the idea of interactivity and the advancement of user power in the context of interactive digital media. While it brings historical Chinese poetry into the digital age, it also uses historical Chinese ideas of the interpretive agency and autonomy of the reader to extend the understanding of interaction.

Benny Ding Leong argues, ‘To go back to origins is to attempt to revitalize ideas and concepts that we are unaware of or that might have become obscured over time.’ 84 Classical Chinese poetry placed great importance on intuitive responses to the world, where Western modernity has emphasized the values of rationality and rationalization as exemplified in the influence of formalistic, conformist, and instrumental principles.

83. For a more developed discussion of this struggle see Andreas Huyssens, ‘Back to the Future: Fluxus in Context’, in Elizabeth Armstrong and Joan Rothfuss, In the Spirit of Fluxus, Minneapolis, Walker Art Center, 1993, pp. 140–151.
84. Leong, p. 53.
from the fields of usability and HCI on concepts of interaction design. The influence of Chinese culture is not apparent in the style of the interface but is rather present as a set of conceptual relations that drive the interaction process. The research also explores how interaction design allows Chinese users to experience a reflexive, intertextual and multidimensional engagement with cultural heritage and identity, the words and themes of a canonical Chinese poem becoming the object, material and medium of exploration.

The mixing of Chinese literary structures and contemporary technology stretches meaning across time, space and cultural boundaries, in opposition to the understanding that meaning can be built on an absolute, fixed information architecture enabling communicative rationality. Where traditional Chinese paradigms of culture and learning aimed to conserve meaning, the designed prototype challenges historically specific ways of reading Chinese poetry by empowering the user to actively reconstruct aspects of Li Po's poem. In contemporary Chinese societies the tendency is to use cultural heritage as an object of emotional identification. While the designed prototype uses classical Chinese poetry, it suggests there are ways of negotiating one’s identity other than by insisting on cultural continuity. Underlying this approach is Ernesto Laclau and Chantal Mouffe’s argument that the meanings invested in identity are inherently unstable and in constant need of reiteration. They argue that labels of identity like race and nation are discursive devices that mask or falsely unify difference. The designed prototype allows the diasporic Chinese user to work through their relationship to cultural heritage using the manipulation of image, text and sound.

Part III

Grounding interactivity in a transitive model
Christopher Farrands argues that in the modernist era, ‘Artificial languages such as Esperanto and Makaton (devised as a simple sign language for those with disabilities) were created to facilitate communication across national and ethnic boundaries on a global scale; to foster international community and understanding; and to solve real world problems.’ In favouring abstraction, the geometric and an economy of means, modernist design equally believed in universal communication and transparency of meaning through the absolute correspondence of form and content. Postmodern thought took fundamental issue with the principle of universality, stressing plurality, difference and indeterminacy as explored in the work of Barthes, Derrida, Foucault, Jameson and Lyotard. From the modernist perspective, the role of design in aiding communication was seen as the core of professional activities, emulating standards of empirical objectivity in science. Postmodernism stressed the existence of plurality and difference, opening design to the positive possibilities of fragmentation, contradiction, disorder and the role of critical looking in the reception of the cultural object. More recently user-centered design perspectives have embraced the agency of audiences, so ‘designer and viewer are actively involved in a shared dialogue, both becom[ing] active participants in the creation and interpretation of the visual message.’

In this research the transposition of a classic Chinese poem to a new media context demonstrates a richer, more complex level of interactivity. The content of the program, Li Po’s poem ‘Leaving Paidih City early’, already demonstrates the potential for heterogeneous meanings through...

its metaphorical dimensions and the interpretive ambiguity of key Chinese characters. Many Chinese characters are visually similar, share common strokes and appear in multiple words, deriving their meaning from context and combination. (Figure 2) According to D.R. Khashaba, a highly developed language with a rich literature creates subtle nuances of thought and special shades of feeling in its uses. Interpreting the

Visually similarity of Chinese character:

財 材 林 杯 村 柯

money timber wood cup village arbor

Meaning deriving from context and combination:

材 — timber
材料— material
材乾— ability

Figure 2 Ambiguity of meaning between similar Chinese characters

metaphors, double meanings and allusions in compound Chinese words is something Chinese speakers are familiar with. Moreover, Chinese poetry actively harnesses these qualities of the Chinese language. The words in Chinese poetry—and the images and meanings these conjure up—afford the reader constant intellectual stimulation and seek to achieve depth of metaphysical meaning. Louise Sundaranajan argues that in this dimension Chinese poetry suggests a transcendent spirit that refuses to settle for or be stuck with any particular mode of being.89

The complexity of meaning in the development of Chinese literature can be traced back to the ancient era. The earliest writing is generally based on philosophical or religious thought, including the writings of Confucius (551-479 BCE) and Lao-Tzu (4th century BCE). Writers of this early era not only made major contributions to the development of Chinese thought but also had a lasting effect on Chinese aesthetics and literature. Confucian thinkers stressed ethical, social and political concerns, developing a literary model that advanced generally applicable ideas, concepts and images illuminating universal truths. By contrast, Taoist influences strived for an awareness of the eternal, metaphysical significance of life beyond history and society, achieved through an appreciation and description of one’s natural surroundings. According to Paula M. Varsano, Taoist philosophers saw the poetic subject as existing in a state of constant movement and transformation, the idea of the elusiveness of meaning having an important influence on the understanding of the poetic subject in subsequent literary discourse.90 Chinese poetics of the era of Li Po were greatly influenced by both Confucian and Taoist thinking. Their work aimed for a high degree of mutability and complexity of meaning despite its economical form, operating from a collective sense of textuality in seeking to stimulate the reader’s conscious reflection on the nature of existence.

Even though literary values and objectives have been widely debated in Chinese culture over the millennia, perhaps the greatest influence on the development of Chinese poetry is the aim to encapsulate the intricacies of the three-way relationship formed by the natural world as subject matter, the poet and the poem so that the reader is offered the opportunity to reflect on deep metaphysical issues. For example, Li Po’s poem ‘Ching-Ting Mountain, Sitting Alone’ reads:

The birds have all vanished into deep skies.  
The last cloud drifts away, aimless.  
Inexhaustible, Ching-ting Mountain and I  
Gaze at each other, it alone remaining.

Unrelieved by any of the usual distractions of nature, the poet looks around himself and is forced by the presence of the eternal mountain to contemplate the nature of his existence. In this symbolic representation of self-reflection, the mountain is the metaphysical other to the poet, highlighting the brevity and inconsequence of human life. Although Li Po names a specific mountain, the Chinese reader recognizes that the meaning of the poem has little to do with the actual geographic location of the poet. Rather, it is the poet’s careful crafting of a set of abstract relations that suggests meaning, showing how in classical Chinese poetry nature is represented as a thing to be actively interpreted at an ontological level, the character of human existence reflected in all natural settings.  

91 A delicate balance is thus struck between the poem’s commonality of meaning, which represents the poet’s intentions, and the reader’s scope to participate in the meaning of the poem and the understand something of their individual circumstances through the process of interpretation.

91. Liu Wei-Chun’s discussion of Li Po’s poem is of particular interest. For more detail, see his Li Po: A critical biography, Taipei, The Commercial Press, Ltd., 1996.
Dean Simonton uses the idea of ‘defocused attention’ to describe this aspect of Chinese poetic thinking.\textsuperscript{92} Elsewhere David Glernter has referred to low-focus thought, where unexpected connections, leaps of awareness and creative juxtapositions are associated with openness to subtle stimuli in the environment.\textsuperscript{93} Building on Chinese views of the metaphysics of nature, the symbolic use of objects, sounds and places are a primary means of expression for the poet, the landscape and landscape elements representing an intricate web of shared and individual perceptions triggered by aural and visual cues that the Chinese reader has learned to read. Portrayed in words, these nature objects reflect both the poet’s momentary responses and his inner nature, inference always overtaking literal meaning in the work of Li Po.

In Chinese thought the openness of the mind to environmental stimuli is encapsulated in the Taoist concept of Chi, which refers to the most subtle, incipient phase of movement in a natural process.\textsuperscript{94} Chi is perhaps more simply explained as the universal energy that permeates and flows through and around everything and everyone. Western scholars see a parallel between Chinese poet’s striving to capture the quality of Chi with modernist poet’s interest in ‘impulses’ and ‘intimations’.\textsuperscript{95} For Ssu-Kung Tu, the famous poet and critic of the late Tang Dynasty, the exquisite experience of Chi is possible only when one is in a state of low arousal.\textsuperscript{96} This sense of the positive value of diminished focus and impulsive responses suggests how traditional Chinese thought can revise established thinking about interface design, where instrumental thinking and values of functional efficiency, clarity of meaning and deterministic information structures dominate. Tu sees the fluidity of Chi as shaping the fundamental quality of writing and reading in Chinese poetry, in the sense that the more subtle the stimulus to the reader’s imagination the richer a poem is perceived to be. Reflexivity has also been an essential

\textsuperscript{92} Sundararajan, p. 203.
\textsuperscript{93} Ibid.
\textsuperscript{94} Ibid.
\textsuperscript{95} Ibid.
\textsuperscript{96} Ibid.
quality of writing and reading in Chinese poetry, the reader’s creative reveries not simply an aesthetic experience but something that turns readers into unconscious writers. Louise Sundararajan argues that the collapse of dichotomies of poet, critic, reader and poem in Chinese poetics, ‘bear witness to a high degree of self-reflexivity, which turns every aesthetic question into a question pertaining to the self such that ultimately it is the ontological question (the creation of the self) that drives the aesthetic question—the creation of poetry.’

Where the Chinese notion of poetry emphasizes metaphor, image, open interpretation, nuanced responses and metaphysical experience, Barrett Watten argues that compositional techniques in Chinese poems generally involve disjunctive, discontinuous forms of assembly that provide models of free authorship and non-sequential reading practices. The connection between poetry and interactivity in the design prototype is therefore not simply theoretical but actual. As Chinese poetry demands active construction of meaning on the part of the reader, interactivity should rely on the user’s input to activate the prospective sequences of content implicit in the web of hyperlinks. As perhaps the most creative application of language, poetry aligns readily with the interactive dimension of new media to emphasize the user’s creative ability where autonomy and creativity are the goal. Reading practices in Chinese poetry and those typical of hypermedia environments are thus reflective of each other in four potential dimensions; content is mutable in itself and its applications; meaning is open-ended in the sense that it is enacted or completed by the reader/user; as a consequence, the concept of authorship is altered; and both present meaning as a complex and many-faceted phenomenon.

97. Ibid., p. 205.
The target for the design prototype is a diasporic Chinese audience like that in Taiwan, the program challenging such audience members to re-negotiate the relationship to ancestral Chinese culture by experimenting with the materials of Li Po’s poem—its words, rhythms, themes and images—to produce new and individual renderings of the poem that reflect their thinking about culture and identity. By allowing users to enact their own interpretation of the poem, the design prototype presents diasporic intervisuality and the poetic as prospective models for interactive media design. The prototype also draws on the idea of critical looking at the cultural object, where the capacity to engage intellectually and creatively with things and situations is a central expectation of successful individuals in the twenty-first century. As Bowden and Marton argue in *The university of learning*:

Developing new ways of seeing (situations and phenomenon) is … not the only form of learning but it is the most fundamental and neglected form of learning. The reason is that once we have developed certain ways of seeing, they become taken for granted; we believe that what we see is the world as it is, and not the world as it is seen by us. We take all our ways of seeing the world for granted, and we see it differently from each other, mostly without being aware of these differences.  

Certainly the prototype suggests there are diverse ways of looking at interactivity in the sense of perceiving its potential. To empower users to engage independently and creatively with media content, designers need to make a serious contribution to expanding the way interactivity is currently thought about, no longer deferring to the positions of HCI and usability experts.

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Positioning Chinese heritage in the present

For Chinese readers the value of historical Chinese literature rests on its cultural and temporal locatability. In contemporary Chinese societies, however, positions on the relevance and value of China’s literary heritage are polarized. Progressive intellectuals see China’s cultural heritage as an obstacle to Chinese society’s engagement with the present.\(^\text{100}\) By contrast conservative intellectuals argue that what is truly tragic for the Chinese today is not the weight of Chinese cultural tradition but its absence as contemporary Chinese embrace popular and mass cultural forms such as television, film, pop music, popular fiction, consumer goods, fashion and the Internet.\(^\text{101}\) The self-proclaimed ‘cultural conservative’ writer He Xin attempts to revive Chinese tradition as a means of mediating the path to modernization by propagating a new cultural authoritarianism.\(^\text{102}\) His view is that traditional Chinese culture is unique, superior and transcends history, seeing no need for contemporary Chinese to learn anything outside China’s own historical, social and cultural values.\(^\text{103}\)

In the invidious negotiation between past and present, artists and intellectuals model the choices for all Chinese. Aihe Wang argues that, ‘Chinese intellectuals today face the challenge of breaking out of the deadly cycle of stark opposition between the conservatives’ egocentric insistence on cultural superiority and the Westerners’ self-denying cultural nihilism.’\(^\text{104}\) For Wang, creating the means for ‘a more nuanced discourse’ between East and West, past and present, depends on the critical use of the rich material of Chinese history and culture to test and modify encroaching Western values. The goal for Chinese intellectuals is not to passively apply Western theory to Chinese culture but rather

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\(^\text{100}\) ‘In contemporary China, the “Chinese cultural tradition” is a point of extreme contention in the political debate on China’s transformation in the modern world. Some radical Westernizers see Chinese civilization—with its essence symbolized by the “dragon” and the Yellow River and called the “yellow civilization”—as a “deep structure” or “national psyche” that causes China to be unprogressive, static, or stuck in its own cyclical repetitions.’ Aihe Wang, ‘Antiquity, Modernity, and Social Theory’, *Journal of East Asian Archaeology*, Vol.2, Issue 1/2, 2000, p. 372.

\(^\text{101}\) Ibid.

\(^\text{102}\) Ibid.

\(^\text{103}\) Ibid., p. 373.

\(^\text{104}\) Ibid., p. 363.
to become a driving force in actively transforming Western thought in the light of both fact and theory to advance current models of culture, ideology and power.\textsuperscript{105} This means thinking through the ways both Chinese cultural tradition and Western world views and technologies distort contemporary realities and experiences so that Chinese peoples the world over are able to stake their own position by confronting the contradictions and intricacies of cultural identity.

Making distinctions between past and present does not mean throwing the past away but rather engaging with it from new perspectives. Successful social and cultural transformations are often based on complex relationship between past and present. David Lowenthal, for example, suggests that Renaissance humanists aware of their desire to both admire and transcend the classical past did not simply oscillate between devotion and rejection, worship and sacrilege, preservation and transformation. Rather, they kept these contrarieties in balance.\textsuperscript{106} Yet the weight of China’s cultural heritage continually challenges artists, intellectuals and everyday Chinese to match the achievements of their ancestors while restricting the idea of what constitutes authentic Chinese cultural expression. Simultaneously, legitimate culture is increasingly marginalized in Chinese societies, Sheldon Lu arguing, for example, that across East Asia literature, once a great wellspring of Chinese culture:

\begin{quote}
\textit{is divorced from social utility and the mission of enlightenment in the general climate of consumerism, commodification, mediatization, and entertainment. It is deideologized and no longer functions as a mouthpiece of the large collectivity. No particular kind of literature constitutes the mainstream, nor is literature itself the mainstream of cultural production and consumption.}\textsuperscript{107}
\end{quote}

\textsuperscript{105}. \textit{Ibid.}, p. 374.
\textsuperscript{107}. Lu, p. 239.
This shift, which problematizes the value of historical Chinese literature, has seen some Chinese intellectuals invest all their efforts in arguing for continuity with past literary achievements in contemporary Chinese culture.

It is not only Chinese intellectuals who can’t break away from the force field of ancient Chinese culture. Western sinologists often act as preservationists, seeking to seal Chinese culture off from modernity and the homogenizing effects of globalization and new technology in the name of an authentic Chinese culture. According to Rey Chow these scholars are fundamentally self-interested. As Chinese writers become modernized and diasporic, incorporating cultural criticism, postcolonial theory and textual deconstruction into their writing, Western sinologists are overcome by the loss of their object of affection. They also lose the basis of their academic careers since Chinese literature no longer needed critical interpretation if it includes its own interpretive commentary on the ‘situatedness’ of Chinese culture in its textual fabric.\(^\text{108}\)

Western sinologist’s proprietorial response to historical and contemporary Chinese culture limits the reading of cultural texts, compelling contemporary Chinese literature to be anti-progressive and historicist in form and content. Rey Chow argues that in response to this situation Chinese intellectuals in diaspora have a special opportunity and responsibility to bring about ‘a loosening of the positivity of the sign “Chinese”’.\(^\text{109}\) She contends that unquestioned ideals of being “Chinese”—together with hierarchical ways of thinking about the rest of the world—must be relinquished for Chinese culture and society to develop.\(^\text{110}\) Like Mikhail Bathtkin, Chow sees culture as an unfinished process, a constellation of possibilities and connections, past and present that can never exist in a completed form, depicting culture as a web of

\(^{108}\) Chow, p. 4.
\(^{109}\) Ibid., p. 93.
\(^{110}\) Ibid.
social relations to be continually dismantled and reworked.\textsuperscript{111} She argues that Chinese literature in the postcolonial era requires an implicit critical edge not unquestioned belief in the magnificence of China’s cultural past.

**Reshaping meanings in diaspora and hypermedia environments**

In a postmodern, postcolonial world, cultural identity is a primary concern for diasporic groups and individuals.\textsuperscript{112} For ethnic Chinese living outside mainland China, traditional Chinese culture may suggest a shared ancestry, language and history but as Sheldon Lu argues it does not impart the ‘blessing of a secure national affiliation.’\textsuperscript{113} Moreover, for Lu, new forms of ‘interaction, identification, and attachment’ bind diasporic Chinese to their new geographic, social and cultural contexts.\textsuperscript{114}

For example, while ancient Chinese culture may signify Chinese identity it has become an object of love and hate for the people of Taiwan. As a second-generation Taiwanese whose family came from the mainland, I well understand how historical Chinese culture has begun to lose its significance in Taiwan and gain new meanings due to the rise of Taiwanese nationalism combined with the effects of modernization and globalization.\textsuperscript{115}

Prior to 1995, Taiwan was ruled for three centuries by different colonial powers: the Dutch (1624-1655), the Chinese Qing Empire (1683-1895), Japan (1895-1945) and Chinese nationalist Kuomintang regime (1945-1995). In 1949, at the end of the Chinese civil war, Chiang Kai-Shek and the Kuomintang regime fled to Taiwan from the mainland, seeing the island as a temporary refuge from which they might reclaim power over China. During its rule in Taiwan, the KMT government consciously projected traditional Chinese culture as standard-bearer of national identity, claiming Taiwan as an integral


\textsuperscript{112} Lu, p. 166.

\textsuperscript{113} Ibid., p. 121.

\textsuperscript{114} Ibid.

part of China. Taiwanese schools pushed Chinese ethnic and national identity, idealizing ‘Chineseness’, which was constructed around a pri-
mal Han-Chinese racial and cultural base. The populace was drilled in traditional ways of interpreting Chinese culture with most Taiwanese feeling justifiably proud to belong to such a remarkable, ancient culture. However, as the dream of recovering mainland China began to fade away for the nationalists, modernizing forces and economic imperatives gradually influenced a change in the Taiwanese sense of self, nation and culture.

In actuality, successive episodes of colonization have made Taiwanese identity a highly complex proposition. In the postcolonial period, which has witnessed the rise of Taiwan indigenous cultures, what was once the ‘mother culture’ from ancient China has become a colonizing influence that envelops and twists the experience and realities of the Taiwanese, fixing them into a position of inferiority. After Martial Law was lifted in 1987 and Taiwan became a democracy, indigenous consciousness has been on the rise while Taiwanese nationalism has become increasingly important to Taiwanese artists and intellectuals as they strive to articulate a separate identity and reclaim their past in the face of the dominating influence of the mainland. The two most recent presidents have been Taiwan born, referring to themselves as ‘sons of Taiwan’. With Taiwan increasingly integrated into the transnational economic structures of global capitalism and the rise of a more geographically specific national identity in Taiwan, many Taiwanese are loosing interest in historical paradigms of ‘Chineseness’, consumerism, popular culture and mass media now representing the basis of contemporary cultural experience for most Taiwanese.

‘Hybridity’ and ‘in-betweenness’, to use Sheldon Lu’s terms, now con-
stitute the plane of experience and identity for most Taiwanese.\textsuperscript{116}\ The

\textsuperscript{116} Lu, p. 61.
Taiwanese government, for instance, positively promotes the market economy, multinational capitalism and new technology as Taiwan’s future while continuing to stress the positive values of traditional Chinese culture as an inherent part of Taiwanese identity. The Government Information Office publication *East and West, Traditional and Modern*, for example, states that:

the term “modernization” implies a specific perspective on time and a judgment in values. What is considered “modern” is relative to “the past” or “tradition.” Other than the time factor, backing off with the past must originate from some elementary difference in culture, which emerged when East encountered the West.\(^{117}\)

While the Taiwanese government is eager to establish an independent national identity, the over-whelming impact of modernization has seen traditional Chinese culture decline in value, if it ever existed in a pure form in Taiwan. Contemporary Taiwanese identity is not a matter of giving up a mother culture for a new and different one. It is inevitably the result of the collision between the local, the global, the present and the past in a process of cultural transition and transformation. This involves reconceptualizing traditional cultural materials through the lens of the present so that past cultural values are reshaped into a new cultural reality. The overall picture is one of dynamic cultural mixing in which values are reshaped and expressed in the context of other, perhaps disparate, values, the new cultural identity asserting the connection between past and present.

It was in 1985 that Elliot Eisner articulated the idea of ‘aesthetic modes of knowing’, seeing creative activity as a form of reflective practice through which people can make sense of things.\(^{118}\) Diasporic visuality is a


prime example of Eisner’s concept, the work of artists in diaspora revealing the capacity to reconstitute culture and meaning in critical ways. Kate McFarlane argues that diasporic visuality arises as peoples and individuals attempt to understand their identity by negotiating a path between their present circumstances and their cultural roots. According to McFarlane, ‘diasporic visuality involves the deployment of tactics such as syncretism, irony, juxtapositioning and intercultural aesthetic cross-hatching which operate collectively to enact both the specificities of diasporic cultural identity and a cultural politics which challenges exclusionary norms of nationalist subjectivity and culture.’

McFarlane’s description of the nature of viewing in diaspora is central to the form and content of the design prototype, which aims for a much richer experience of interaction based around reflexive ways of seeing, knowing and understanding. The hypermedia environment suggests a context and a set of conceptual processes where diasporic Chinese users can draw on the archive of cultural meanings contained in Li Po’s poem to explore aspects of their cultural identity and experience. Conversely, working through the tangled threads of conflicted cultural meaning experienced by diasporic individuals presents a field of exploration without set boundaries. In emphasizing open-ended connections over determinate content the design prototype demands strategies of interaction and interface design that bridge the gap between cultural consumption and production. Demonstrating the creative potential of interactivity in IMM, the design prototype allows users to construct and perform meanings and self-concepts beyond the scope of the original text through visualization.

In the prototype the written content of the poem is divided into thirteen sets of elements that can be rearranged at will. The associated

119. McFarlane, pp. 175-184.
visual elements, which include images, graphics and motion graphics complemented by sound, allow the user to construct multiple visual renditions of the poem. The visual and aural materials of the program, supported by the structure of the interface, allow users to explore the codes of Chinese culture, its ideological resonances as well as their own cultural literacy and positioning. The partiality of each rendering, highlighted by the fact that the program permits individual interpretations to be saved, compared and revised, suggests that while cultural pasts can be owned they can never experienced in their original state, being rather perpetually negotiated in incomplete, disorderly ways.

It is not overly ambitious to assume audience’s scope for personal interpretation in the context of digital media, even accepting the extent to which cultural responses are conditioned by the particular material and cultural circumstances of individuals. As Judith Butler suggests, the iteration of meaning is a continual occurrence in culture and society, which produces new cognitive positions and fresh ways of conceiving the world. For Butler, iteration processes call attention to the absence of essential, natural or ideal categories of meaning prior to each iterative appearance within a causal chain, suggesting only continual shifts between pre-existing categories and new representations. In a related sense postcolonial theory and theories of diasporic visuality challenge the division of the world into simple opposites. Both emphasize the individual and cultural diversity of diasporic and colonized peoples, suggesting that while such individuals may stand apart as a group from colonizers or from original populations, they are different one from each other despite their shared pasts and should not be seen as a collectivity.

Kate McFarlane argues that diasporic visuality can produce ironic outcomes that reflect critically on the relationships between power,

images, ethnicity and nationalism. This idea of criticality drives the selection and organization of visual and aural elements in the design prototype. The interface design offers the potential for the reconceptualization and freeing-up of meaning in Li Po’s original text, the openness to the slippage and interplay of language, image and meaning creating scope to deconstruct the text while suggesting that the real agent is the user of the program. For McFarlane, ‘diaspora can be experienced both as a dynamic tension and as a space of opening in which issues such as the narratives and visualizations of nation and the politics and stylistic consequences of diasporic interventions into cultural practices can be explored.’ The complex negotiations around culture in diasporic visuality highlight the multidimensionality of cultural production and suggest the possibilities of difference and multiplicity in new media contexts. The potential of interactive multimedia to facilitate multiple viewpoints, double consciousness, differential pathways and in-betweenness is real if designers move beyond the current paradigm of clear communication and efficiency of use, replacing hierarchical information structures defined by the designer and content developer with interpelling experiences based around provisionality of meaning and the creativity of users.

User agency in an open poetic structure: a new design strategy

In the design prototype, the user can create different interpretations of the poem by combining diverse visual elements. This begins with the semantic dimension of the Chinese characters that make up the poem. Single-word Chinese characters can have multiple meanings, which vary according to factors such as visual rendering, character recognition and associative meaning. (Figure 3) By contrast, two-character words are usually well defined, with fixed meanings, making reading and

121. McFarlane, pp. 175-184.
122. Ibid.
However, the alternative and implied meanings in single-word Chinese characters establish the potential for expansive interpretation of Chinese texts. This is actively encouraged in the design prototype where meaning can be constructed from any or a combination of the following: the ‘original’ meaning of the poem and the characters from which it is composed, implied meanings in the characters from which the poem is composed, the general cultural literacy of the Chinese user, or personal play with the meaning of a character. Facilitated by the interface and interaction design, the user can construct individualized interpretations of Li Po’s poem from the 117 separate elements that the

Figure 3 The semantic complexity of single Chinese characters—Chau (dawn)

Part 3 Grounding Interactivity in a transitive model

Program makes available. The inclusion of music and ambient sounds from the phenomenal world extends the potential for differential meaning in the prototype while bringing all the dimensions of digital media into play. Chinese poetry has been intimately related to music from its earliest days while in the Chinese language each written character has an inherent tonality. To incorporate an aural dimension in a poem for conceptual and creative effect is a common strategy in Chinese poetry. The addition of time and sequence to the fixed textual order of the poem through multimedia adds further depth of meaning and expression.

The initial presentation of elements in the prototype is driven by the order of the words in the poem. From that point, however, the hermeneutic dimension is open to the user, the possibility of producing individual multimedia works from the ‘materials’ of the program allowing the user to engage in self-directed, creative play. The openness of the information architecture allows the user to move to specific points of interest in the poem, escaping the linear order of the text. (Figures 4 and 5) The designed outcome amplifies the multiple meanings and visual possibilities already implied in the text while unleashing the user’s imaginative engagement with cultural heritage. It does this, however, while still functioning within the parameters of the poem, which is always available to the user in its original form as a point of reference. The play between old and new, original and derivation is also tracked throughout the process to support the reflexive dimension of interaction.

Classical Chinese poetry can seem inaccessible to contemporary readers due to its highly formal and economical style. The scholarly interpretation of poems as taught in Chinese education systems requires a deep knowledge of literature and history to appreciate all the potential allusions and associations. In the context of the prototype, 124 Alison M. Friedman, ‘The Evolution of The Idealized Chinese Poetic Aesthetic from The Late T’ang Through The Northern Sung Dynasty’, http://www.tcr.org/tcr/essays/EPrize_Poetry.pdf, June 1995.
however, dividing the poem into sets of related words offers a way into the exploration of the poem for contemporary users with only a basic understanding of the metaphorical dimensions of Chinese language and literature. The treatment of the single character, two-character and three-character words highlights the potential for multiple readings of the poem, indicating how meaning can vary according to the combination of text, image and sound. The open structure of visual and aural elements suggests that meaning, as well as the divisions between forms and

![Figure 4 Partial flowchart of the design prototype](image-url)
Part 3 Grounding Interactivity in a transitive model

Figure 5 Multiple pathways illustrate the use of open information structures to heighten creative experience

content, can be productively unstable, enhancing the dimension of play. Interaction structures in the prototype do not simply reflect meanings but provide a basis for meaning construction and for an experience that is both creative and reflective. The conceptual organization of the visual elements encourages the reconfiguration of the complex imagery of the poem while the number of images for each text fragment expands the range of potential associations and meanings. (Figures 6,7,8,9,10)
Figure 6 The construction of multiple viewpoints through the combination of visual elements
Figure 7 Different arrangements of visual elements to produce an individual response to the poem
Figure 8 Movie sequence results from Figure 7
Figure 9 Alternative arrangements of visual elements to produce a different response to the poem
Part 3: Grounding Interactivity in a Transitive Model

Visual Interpretation Outcome 2 - Movie Sequence

Figure 10 Movie sequence results from Figure 9
Figure 11 shows the four main panels of the interface while Figure 12 shows the navigation window or ‘word tray’, through which users construct each rendering of the poem as a non-linear sequence. The visual/aural element panel (Figure 13) contains a set of motion graphics, still images, sounds, and typographic and symbolic renderings of characters that the user may select elements from to construct their response to the poem. The construction panel (Figure 14) acts as a ‘placeholder’ for arranging the visual and aural elements while allowing the user to apply effects in the transition between elements in the movie sequence. The construction panel is of a simple design, placing emphasis on the creativity and productivity of the user. The movie preview window (Figure 15) constantly allows the user to see the visual elements they have selected in sequence, providing a continuous overview of the creative process. The design encourages active user engagement with media content, reconfiguring the role of the user from passive response to active engagement.
Figure 12 Navigation window (word tray)

Figure 13 Visual/Aural elements panel
Figure 14 Construction panel

Figure 15 Movie preview window
Part VI

Conclusion and future study
This document has sought to redefine the nature and purpose of interactivity in digital media contexts, principally by thinking about the idea of user power. In this it has drawn substantially on theoretical ideas concerning the reflexivity of social subjects, especially the critical imagination bound up in diasporic visuality. Arjun Appaduri characterizes the workings of the contemporary imagination as both a form of labour and a potential conduit for individual resistance, arguing:

No longer mere fantasy (opium for the masses whose real work is elsewhere), no longer simple escape (from a world defined principally by more concrete purposes and structures), no longer elite pastime (thus not relevant to the lives of ordinary people), and no longer mere contemplation (irrelevant for new forms of desire and subjectivity), the imagination has become an organized field of social practices, a form of work (in the sense of both labor and culturally organized practice), and a form of negotiation between sites of agency (individuals) and globally defined fields of possibility.125

In an age of mass information and communications, individual acts of the imagination are routinely mediated by digital technology while the use of information and communications technology is more or less synonymous with citizenship in many nations. Developments of this scale reinforce the need for interface and interaction designers to keep pace with social and technological change on at least two levels. At the most basic, interactive mediums imply input and effort on the part of the user that product developers need to harness in the most effective

ways. The question that I have pursued in this study is whether the empirical concepts of effectiveness delivered to design from the fields of usability and HCI should be supplanted by more complex models of the role of the user that merge consumption with production and understand effectiveness more in the sense of whether the interactive experience is compelling.

In redefining the potential for user agency in IMM contexts, designers could do well to take account of evolving concepts of the audience in media studies, where, as Elihu Katz argues, ‘New theories of the audience maintain that viewer’s add value to what they view. Going far beyond functional theories of media use, they proclaim the competence and creativity of the individual. They suggest that viewers do work—not just by staying awake, but by investing effort, by being critical, by making “public”’. This document has speculated on the potential for this to happen through the practice of interface and interaction design, outlining the current limitations in the understanding of interactivity and then using ideas of critical reflexivity and diasporic visuality to encourage designers to unleash the potential creativity and productivity implied in interactive processes. From the perspective of the research, however, the most challenging problem is that of integrating theoretical issues with practice, in that theory suggests no specific strategies for designing. For instance, many media theorists see digital media as implicitly suggesting a kind of creation through the multiple ways of presenting, receiving and retrieving information. Lev Manovich, for example, suggests that the new media object is not fixed but something variable that can exist in different, potentially infinite versions. Yet such theoretical positions fail to give specific direction to the designer in how to design interaction processes or information structures that empower users by enhancing creativity in interaction.


Conversely, IMM has attracted a wide range of experimental activity from practitioners in a variety of disciplines, all seeking to extend its boundaries, invent new capabilities and apply interaction processes to different contexts, technologies or combinations of technologies. These include artists, software developers, digital designers, information designers, computer scientists, cultural theorists, media communication theorists, media workers, and many more. As I have outlined, new media artists, in particular, make the claim that the uniqueness of their work expands the limits of the digital creative process although in actuality it often preserves the traditional relationship between artist and audience. It is digital designers who are most intently focused on the nature of interface design and the conceptual structuring of interaction processes. Yet, as I have shown, the conception of interactivity in design operates in a narrow range of perspectives despite the often idealistic theoretical axioms of many design commentators.

IMM offers a new medium for presenting information and hence potentially different modes and levels of experience, though its newness is often uncritically accepted and its difference poorly defined as a consequence. This research explores the creative dimension of interactive processes when approached as open-ended, flexible and permeable, recognizing that individual users are not just the destination for IMM products but play a primary part in producing the meanings and experiences that flow through and from these products. The research rejects rigid adherence to conventional principles of utility and legibility in the fields of usability and HCI, as well as those that have been handed down to contemporary communication design from modernist design. The discussion has challenged received wisdom on the nature of interactivity by looking outside the field of design to postcolonial theory, theories of disaporic visuality and traditional Chinese concepts of the
poetic in order to consider the scope to discover reflexive, productive and imaginative dimensions in the interaction process. This has involved an extension of the discursive field around interaction design beyond utilitarian concerns. Indeed, in this sense my consideration of interactivity operates mainly in a speculative dimension, somewhat disengaged from the often pragmatic project of interaction design. Yet in discussing the nature and value of design research in an age where economies require ‘instant adaptability’ to changing market conditions and technological developments, Ezio Manzini argues there must be scope for situations that ‘allow us to “take time” in order to think about the artifacts that are produced by our society (and about the way in which, in turn, our society is shaped by them).’

While the development of commercial products for the market requires ‘quick and flexible reactions’ Manzini argues that designing for the future requires the time and space in which to reflect on ‘the complexity of systems’.

Accordingly, this research has raised a number of critical questions regarding the user/designer relationship, including shifting concepts of authorship, the inherent instability and the intertextuality of program content, the responsibility and authority of the designer and the role of the user in digital media environments. These issues are taken up experimentally in the designed prototype, where facilitation of the creativity of the user and their awareness of processes of critical reflection, textual deconstruction, the multiplicity of meanings and the slippage and interplay of signs are the primary aim. The model of creative interactivity I have proposed, in being based around cultural play, advances but one approach to the nature and meaning of interactivity in contemporary design practice and does not tackle circumstances where particular information needs to be communicated with clarity and precision. How to heighten user power while retaining the integrity of content and the

129. Ibid.
fluidity of interaction processes is the subject of another study, though understanding how meaning is discursively and contextually constructed would seem to be relevant in all digital contexts, Douglas Kellner and Jeff Shar arguing that, ‘in the computer-mediated cyberworld … people need to critically scrutinize and scroll tremendous amounts of information, putting new emphasis on … reading abilities.’

The idea of interactivity needs clarification and development if interface design is to keep pace with the technical capacities of IMM technology. The research does not deny the significance of the functional approach to interactivity advanced by HCI experts and GUI professions but argues that interaction design has often suffered from an uncritical acceptance of the empirical perspectives of these adjacent fields. In downplaying standard concepts of the browsability and comprehensibility of information, ideas of active participation, open-ended information structures and co-creation as advanced by new media theorists are important in thinking of the user as a creative participant in the interaction process. However, at present these ideas remain largely theoretical. The design prototype explores interactivity through the practice of design, suggesting how the intermediary role of the designer can be less prescriptive with the aim of producing richer experiences for the user. To this end I have opened the idea of interactivity to modes of reading, thinking, experiencing and imagining found in Chinese poetry. This was inspired by a wish to develop an interactive product to make Chinese poetry accessible and appealing to a new generation of readers. That aim prompted the thought that hybrid influences might be better for the future of design than a drive towards standardization. One view of globalization is that the homogenizing influence of EuroAmerican commerce, culture and technology will roll over the world, erasing the cultures, beliefs, values and attitudes of each society it meets. The record

of colonialism suggests that this is unlikely to be true, but rather lead to the intermingling of languages, cultures, traditions and world views, as well as the movement of significant numbers of people between regions of the world. Jan Nederveen Pieterse argues that in the history of the world, ‘Mixing has been perennial as a process but new as an imaginary.’ There are probably as many possible conceptualizations of interactivity as there are contexts to which it is applied. The design prototype renegotiates interaction in speculative terms through an open-ended amalgam of diverse disciplinary and cultural approaches, seeking a new imaginary for design.

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A list of publications produced by the candidate as a result of the project


