The Future of Digital Media Culture is All in Your Head:
An Argument for Integration Cultures

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ABSTRACT

Although research into digital media culture assists greatly in understanding new technologies, its influences and affects, to continue to do so in isolation of other media shows little regard for the reality of its role and use. 'Old' or 'traditional' media such as dusty books and smudged newspapers, consensus television, linear films and radio are also part of the daily medial diet of humans. Indeed, this paper argues that an emerging cultural approach is the integration of all media and that this will continue in the near- to long-term future. Integration cultures are more the future than digital cultures. This argument is explored through providing examples of extant integration practices and outlining economic and cognitive influences. Finally, these influences and existing practices are utilized as insights into potential future cultural practices.

General Terms

Design, Human Factors, Theory.

Keywords

Culture, Media, Technology, Complexity, Transmedia, Remediation, Adaptation, Intertextuality, Transfictionality, Transliteracy, Audience, Aesthetics, Taxonomy, Convergence, Print, Digital, Oral, Narrative, Game.

INTRODUCTION

The rhetorical title of this paper, 'the future of digital media is all in your head', is intentionally polysemous. It refers to two observations: One, the idea that people use only digital media in the present and in future is fictitious; and two, that due to variety of factors, the process of integrating media does not always happen with technology, but inside a person's head. On the first observation, digital media is but one part of an entire media ecology. 'Old' or 'traditional' media such as books and newspapers, television, films and radio are also part of the daily medial diet of humans, to varying degrees. Digital media is used in conjunction with other media in the present, and this practice will increase in the future. Indeed, in *Convergence Culture*, media theorist Henry Jenkins explains the paradigm:

> "If the digital revolution paradigm presumed that new media would displace old media, the emerging convergence paradigm assumes that old and new media will interact in more complex ways." ([1], p6)

The second observation, that people are integrating media cognitively rather than technically explains existing practice and supports the argument that the process of integrating media will continue. In other words, there are cognitive drives to the emergence of integrating media. In this context, the future of digital media is two-fold: digital media will increasingly be integrated with other media, both technically and cognitively; and digital media will increasingly be the binding technology of all media.

To foreground the argument that integrative practices will be an important part of the digital media future, descriptions of some of the ways different media platforms are already being integrated in many areas of society will be provided. The subsequent section will then explore the economic, industrial and cognitive forces informing these approaches. Possible ways the integrative urge will manifest in the near- to long-term future will be posited in the final section of this paper. Initially, however, I'll address the terminological and conceptual issues with championing a media age with no new media invention.

1.1 On Terms

I have put forward the term 'integrating media' to describe this age rather than others for few reasons. Firstly, I consider 'integrating media' to be a more accessible term that is semantically stable than others such as Henry Jenkins' 'convergence' and the term I and others have championed: 'cross-media'. I am not comfortable with 'convergence' because, although Jenkins' explanation of the term is sympathetic to the notion of integration, I find that it is too often incorrectly bundled with the notion of hybridity. The term doesn't communicate the process of integrating media in ways that sustains the integrity of each media. It is intended as a placeholder, however, and so I hope my rationale is considered in preference to the term proposed. As for 'cross-media': this term is employed by industry and academia to denote the remediation and adaptation of content, integrative practices and at times to explain the employment of new media in general. It is for clarity, therefore, that the term 'integration' is utilized in this paper.

As for proposing a media culture without the introduction of a new media invention. In Walter J. Ong's pivotal work on oral,

chirographic and print cultures, the following rationale for medial-communication ages was offered [2]:

> Many of the features we have taken for granted in thought and expression […] are not directly native to human existence as such but have come into being because of the resources which the technology of writing makes available to human consciousness. ([2], p. 1)

I argue that it is the proliferation of technologies, both digital and not, that have facilitated a human consciousness characterized by integrative practices. The increased complexity of forms requires an organizing process that is driven by the search for patterns, relationships and order between things. This age is not distinguished by the introduction of a new media, but how people are integrating media in new ways.

Whereas digital media introduced the instability of the text, hypertextuality and new forms of interactivity, integrating media brings back traditional media into the experience. Fixed texts rub shoulders with mutable ones; networked forms with non-networked; original forms and their varying degrees of remediated identity. All forms co-exist and new polymorphic ones emerge. Print, electronic and digital media cultures co-exist with cultures that integrate them. The integrationist urge is not argued to be the mind-set of every person on the planet. Instead, it is considered to be an emerging cultural imperative due to the extant media ecology. It is the integrative cultures that will, I argue, be increasingly prevalent and so are the subject of this paper.

2. EXTANT INTEGRATIONIST URGES

A compelling argument that the integrationist urge will be a pivotal feature of the future is its extant presence. These practices are not just in the fringes of society but are found in mass entertainment, independent art, marketing, journalism and technology sectors, to name a few. This section explores two areas where integrative practices are key drives: entertainment and technology. They represent two approaches to integration therefore: abstract and material.

2.1 Entertainment

2.1.1 From Tie-ins to Transmedia

Over the past few years we've seen a shift in both the analytical perspective and the object of study in the area of what was formerly known as 'tie-ins' or franchises. In 1991, media theorist Marsha Kinder described what she termed franchises like *Teenage Mutant Ninja Turtles* as a 'super entertainment system' [3]. So too did Jim Collins and David P. Marshall recognise the increasing synergistic approach of mass entertainment producers in their theories of 'commodity intertexts' for Collins in 1992 [4] and 'new intertextual commodities' for Marshall in 2002 [5]. The editor of *The New Media Book* in which Marshall's essay is published, succinctly explained the area:

> "The interaction, augmentation, and interdependence arising between what can be roughly deemed as 'old' media and 'new' media producers are some of the most prominent aspects of contemporary media. […] This synergistic relationship amongst media has become a necessary feature within the new media market paradigms and the growing global production and marketing ecologies." ([6], p.ix)

In 2001, a concern with aesthetics entered the media theorist method when Jenkins proposed 'transmedia storytelling', which he expanded in 2006 [7] [1]. So too, in 2003 media theorist John T. Caldwell introduced 'second shift aesthetics' to 'bridge the unfortunate gap that has widened between academic studies of industry, from a political-economic perspective, and critical studies in the humanities' ([8], p132). More recently we have terms such as media theorist Angela Ndalianis' 'neo-baroque aesthetics' [9], new media literature theorist Jill Walker's 'distributed narrative' [10] and Marc Ruppel's 'cross-sited narratives' [11]; and my own terms employed through a phase of evolving cultural understanding: 'multi-channel storytelling', 'cross-media storytelling' and 'polymorphic narrative' [12-15].

As I flagged earlier, the shift in terms from a socio-economic to a predominantly aesthetic perspective is indicative of a methodological shift but also a shift at the level of practice. Fundamentally, tie-ins of the past are differentiated from contemporary integrated forms in the following ways: they are conceived at the time of creation rather than after it; 'each new text making a distinctive and valuable contribution to the whole' ([1], p139); creative control over the extensions either by having the same creator or commissioned creators; they are part of the primary work (needed for coherence); consideration of the combined experience of the units in each medium for a particular (polymorphic) aesthetic effect; employment of cross-media traversal techniques are embedded within rather than exterior to the work; consideration of relationship between the content, medium, arts type and audiences; targets and is experienced by more than fans; ubiquity: employed by many major entertainment corporations, but also by independent artists and writers. This provisional listing is not intended as necessary pre-conditions, but provides an insight into the different paradigm of integrating media.

The stand-out difference I highlight in this paper is the delivery of unique content in each media form. Due to the popularity of Jenkins' 'transmedia storytelling', his definition is provided:

> "A transmedia story unfolds across multiple media platforms with each new text making a distinctive and valuable contribution to the whole. In the ideal form of transmedia storytelling, each medium does what it does best—so that a story might be introduced in a film, expanded through television, novels, and comics; its world might be explored through game play or experienced as an amusement park attraction." ([16], p. 139)

As I have argued elsewhere [17] the relations between many transmedia forms can be understood through segmentation. These segmentations represent a practitioners approach to integrating media through the increase of dependency between segments in different media platforms and artforms.

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2.1.1.1 Transmedia Segmentation

There are three types of segmentation that have been identified and developed in the context of television narratives: 1) series; 2) serial; 3) flexi-narrative. A series, as defined by Sara Gwenllian Jones [18], is when 'each episode is self-contained and storylines do not continue across episodes'. A serial form is when each installment is 'part of a continuing narrative that is not concluded until the end of the series' [18]. A hybrid of the series and serial form was identified by TV theorist Robin Nelson [19] in 1997 with his theory of 'flexi-narratives.' More recently, game designers and educators Andrew Rollings and Ernest Adams recognized this type in the context of digital games as an 'episodic delivery': a 'cross between the serial and series' ([20], p117).

Rather than adapt to another medium, creators are now also creating works that are segmented, in the manner described above, across traditional and digital media. An example of a transmedia series is observable in the digital game *24: The Game* (published by 2K Games, developed by SCEE) that was released in the US and Europe early 2006, during season five of the television broadcast of *24* (Fox Broadcasting Company) in the US. The narrative of the game is not an adaptation of a TV episode but a unique story in itself. It was set six months after season two and two and a half years before season three.

An example of a transmedia serial is the 'See What Happens' television commercial for Mitsubishi, 2004. In 2004 Mitsubishi broadcast a thirty second advertisement during the Super Bowl. It featured two cars in an accident avoidance test. The cars speed along a highway, chasing two trucks that have men hurtling objects out the back of them. The objects increase in size from bowling balls, to barbeques and finally to two cars. The cars tumble out and just as they are about to hit the competing cars the screen cuts to black and shows the text: 'seewhathappens.com'. At the website viewers could then watch the twenty second ending of the clip.

A transmedia flexi form is observable in the often-cited example that Jenkins offers. In 2003, the Wachowski Brothers released three units in different media: a short anime (Japanese animation), digital game and feature film. Each of these had their own self-containment but also a continuing narrative that ran through all of them. In the short anime, 'The Last Flight of Osiris', the character Jue and her crew discover the machines are boring to Zion. Their aim is to warn Zion of the impending danger by sending a message to the Nebuchadnezzar crew. At the end of the story Jue just manages to post the letter (thus ending a narrative thread). What happens to the letter is dealt with in the digital game, *Enter the Matrix*. Indeed, the first mission for the player is to retrieve the letter from the post office (continue the narrative). Then finally, at the beginning of the second film, *The Matrix Reloaded*, Niobe (who is one of two player-characters in the game) reports on the "last transmissions of the Osiris": the transmissions posted in the anime and retrieved by players in the digital game. The feature film has its own narrative that is indeed continuing in a monomedia thread too (the feature films), but the transmedia flexi thread highlighted here has closed.

The increase of dependency between each medium attests to the artistic urge to create works that are bound together rather than being paratextual.

2.1.2 Cross Media Games

Parallel to the exploration of transmedia episodic relationships has been the implementation of multiple media platforms at the level of a single story or game. In the interest of a discipline-neutral ontology, I have elsewhere described this realm of medial units that are needed for coherence as an 'event-realm' [17]. It is sympathetic to what historian Johan Huizinga describes in his seminal work on 'play', *Homo Ludens*, as a 'magic circle' [21]. Akin to a paragraph in each medium, a transmedia *EventRealm* describes a work that has a high-degree of dependency between each segment in each medium. This approach to multi-platform integration has proliferated in the domain of gaming. Many of these works are not necessarily predominantly 'games' as they have a high-degree of both narrative and gameplay (alternate reality games and some locative arts for instance), but are usually discussed by both practitioners and theorists within the domain of gaming nomenclature.

Pervasive gaming practitioners and researchers of a jointly-authored paper entitled 'Designing Cross Media Games' describe the namesake as:

> "Cross media games are a form of pervasive gaming. They focus on games that are played across different devices and media channels and that employ a wide variety of gaming devices and media channels in the game play, including state-of-the-art mobile and stationary computing devices as well as more traditional communication and information channels such as television broadcast or print media." (Irma Lindt et. al. [22])

In the spirit of this definition I invoke the term 'cross media games' here as a catch-all to bundle together games that utilize multiple media platforms in their execution. The term is not intended as an argument for a top-level category in a taxonomy either. It is noted that 'cross media games' are argued to be situated within 'pervasive gaming' [22] [23]; while others argue 'pervasive gaming' is a sub-genre [24] [25]. Instead, 'cross media game' is employed purely for illustrative purposes in the context of this paper.

There are many genres of 'cross media games': pervasive gaming, ubiquitous games, big (urban) games, locative games and mixed reality games to name a few. Pervasive game designer and theorist Jane McGonigal describes alternate reality games (ARGs) as follows:

> "ARGs are interactive dramas; played out online and in real world spaces; taking place over several weeks or months; in which dozens, hundreds or thousands of players come together online (small ARGs might have a couple of hundred players, the biggest ARGs 600,000 active players and 2 million people watching); they form collaborative social networks and work together to solve a mystery or problem that would be absolutely impossible to solve alone." [26]

Straddling both mass entertainment and independent gaming, ARGs are commissioned as branded entertainment for major corporations whilst also having an active grassroots community. Well-known ARGs include *The Beast* (Warner

Brothers, 2001), *ReGenesis Extended Reality Game*, (Xenophile Media, 2004 and 2006), *The Art of the H3ist* (Audi, 2005) and *I Love Bees* (Microsoft Game Studio, 2004). Independent but equally well-known ARGs include *Metacortechs* (various, 2003) and *Perplex City* (Mind Candy Design, 2004-2007).

Many large-scale ARGs attract massive numbers of players and media attention: *The Beast* had over 3 million people actively participate [27], *I Love Bees* 3 million people (Jordan Weisman in [28]) and *The Art of the H3ist* '500,000 story participants' [29]. McGonigal approximates that between 2001 and 2006 there were 'seventeen commercial alternate reality games (ARGs), fifty-two independent ARGs, and many dozens more smaller and lesser-known ARGs' ([24], p262). The popularity of ARGs on a per-game basis, their attractiveness to corporations and the active creation of them over the last few years attests to the pervasiveness of the form.

Practitioners (and researchers) such as UK-based Blast Theory have created many games like *Uncle Roy All Around You* (with Nottingham University). This game has both street and online players. The street players use PDAs to communicate with the online players who help them track down Uncle Roy. It's Alive's *BotFighters* is a locative mixed-reality game that, through the use of a mobile phone, combine a virtual environment with the real world in a game of street-based combat. Jeremy Hight, Jeff Knowlton and Naomi Spellman's *34 North 118 West* is a locative arts project that requires participants to walk around the streets to trigger, through a GPS-enabled PDA, audio narratives of the space. The University of Minnesota The Design Institutes' *Big Urban Game* is a game where online and street players work to move giant inflated playing pieces across a 200-square-mile city zone over five days.

2.1.3 Networked Narrative Environments
In installation and performance art, experimentation with the use of multiple media channels has been explored with vigor since the Internet. Telematic artist and theorist Andrea Zapp describes these as 'networked narrative environments':

> "Due to this constant merging of real and virtual spaces and existences, the 'networked narrative environment' must be defined as a *modus operandi* that reflects not only creative but also social processes, while playing with a deliberate and experimental combination of artistic devices, disciplines, and languages." ([30], p. 11)

In 1999, for instance, Andrea Zapp and Paul Serman exhibited a telematic artwork: *A Body of Water*. The work was situated at two locations: Wilhelm Lehmbruck Museum in Duisburg and a disused colliery at Herten. People at Duisburg pretended to shower with people at Herten, they both saw each other on televisions, and their joint performance was also projected onto a wall of water at Herten, where documentary footage of miners showering played.

All of these representative examples illustrate how works are being created to employ traditional and digital media together in integrated experiences. The games and telematic art cited rely particularly on the affordances of new media to realize the entire work. The next section will outline the various ways technologies are being created to integrate at the mono- and multi-platform level.

2.2 Technology
In what is probably the most telling of human-media relationships is the changes to technology. Humans adapt technology to move out of the constraints of a technology created by humans. Technological progression, then, is story of the complexity of relationships between humans, their creations, and other humans. Technologists in the age of integrated media are concerned with how the various technologies designed (perhaps unconsciously) for isolated use can move out of that isolation. There have been many technological approaches to integrating media which I describe, for illustrative purposes only, as mediation, convergence, connectivity, interoperability and tracking.

2.2.1 Mediation
Mediation describes technologies that convert media types. These conversions have two competing goals: to maintain the integrity of the information that is being converted, whilst also requiring a technical adaptation from one form to another. Conversion in media industries is termed as 'repurposing' (and sometimes 'porting'). The term refers to the reusing of a particular 'file' in a different media. For instance, the format of the television series of *Desperate Housewives* has to undergo 'transcoding' for it to be suitable for podcasting.

2.2.2 Interoperability
Rather than mediate media types, interoperability is concerned with creating technologies that do not need converting in order to work on different delivery technologies. Interoperability is sometimes described in industry as 'multi-platform' and the ability to 'create-once, publish anywhere, everywhere' (COPA/E). Examples of interoperability include a certain application can run on any operating system (such as Linux, Windows, Mac); on different hardware, game consoles and so on. Although there are definite technical difficulties in attaining an interoperability goal, digital media types are also not interoperable because of the restrictions companies have embedded in them. Isolation of media formats has been a technical *and* economically-driven imperative.

2.2.3 Convergence
Technological convergence is concerned with creating hardware that encompass the functions of many technologies so you do not require the use of others. It is the union of technological forms into one. For instance, a mobile phone that can access the Internet, receive and send emails, play PowerPoint slides, view movies, play songs…and be a phone. Although there have many attempts to create converged hardware, this has not translated to less devices. Indeed, Henry Jenkins calls this trend the 'Black Box Fallacy' because there is in fact a proliferation of black boxes. He explains:

> "We can see the proliferation of black boxes as symptomatic of a moment of convergence: because no one is sure what kinds of functions should be combined, we are forced to buy a range of specialized and incompatible appliances." ([1], p. 15)

2.2.4 Connectivity

Connectivity refers to the goal to connect technologies within a medium and between networked devices and networked and non-networked devices. Attempts to connect all objects, whether they be media, trees or humans, have been discussed through notions such as 'ubiquitous computing' or 'ubicomp' [31] and the 'Internet of Things' [32, 33] and 'everywhere' [34]. Mark Weiser, the so-called father of 'ubiquitous computing' or 'ubicomp', and John Seely Brown outlined the stages of the relationship between computation and humans. They claim their has been the mainframe era, the PC era, and then there is a transition period in which the Internet and distributed computing takes hold. They claim it is in 2005 (the paper was published in 1996) that the ubiquitous computing era will take shape. 'Ubicomp', they explain, 'is fundamentally characterized by the connection of things in the world with computation'.

This is perhaps the key technological trait of the integrationist cultures because it acknowledges the integrity of each medium whilst seeking to make connections between them. Technologies that enable the connection between digital devices include ethernet, wireless, 'Near Field Communication' (NFC) and Bluetooth. Connectivity between networked and non-worked devices includes technologies such as Bluetooth once again (eg: Channel 4's Bluetooth posters), infra-red, barcodes, QR Codes, Semacodes, Radio Frequency Identification (RFID) and Manolis Kelaidis's 'bLink'.

2.2.5 Tracking

The final category in the technology perspective of integrating media approaches is tracking. While the previous sections were concerned with how content on media can be moved, tracking is the concern with capturing the movements of people and things across media (both organic and inorganic). The tracking of 'consumers' or 'audiences' within a particular medium is a practice common in entertainment and marketing industries. Viewers on television are tracked, so too are sales of books, cinema attendances and website visitors. Tracking audience's movements across media has become a pivotal concern for producers and creators.

In this section on technology and entertainment I have shown some examples of how people are integrating media at both the abstract and technical level. These practices are driven, however, by a range of urges that will be explored in the next.

3. THE WHY OF INTEGRATION PRACTICES

Ludologist Espen Aarseth, in his analysis of 'crossmedia productions', argues that in order:

> "To gain a full perspective on the "poetics" of cross-media productions […] this ought to be accompanied by a study of the cross-media industry: the economy of cross-media financing, licensing, marketing and distribution." [35]

This is especially critical in the context of integrating media approaches, where the forces involved in creative production are both aesthetic and financial. Likewise, media theorist Steven Johnson argues for a multi-disciplinary approach to research, citing the need for a narratological, economic, technological and neuroscience perspective [36] (206-207). Since I have touched on the narratological, ludological and technological approaches to integration, this section will explore economic and cognitive. Economic and cognitive forces denote the internal and external influences on the practices outlined in the previous section and those posited as emerging in the future.

3.1 Economic Forces

Among others, two economic forces are presented here as primary motivators to integrative media practices in the mass entertainment, marketing and journalism sectors: demassification and horizontal integration.

3.1.1 Demassification

New media marketer Joseph Jaffe explains that consumers can no longer be reached through mass media technologies such as TV because of the "continued fragmentation and proliferation of media touch points and content alternatives" [37]. Marketing has traditionally relied on the ability to 'reach' a large amount of consumers through a single mass broadcast. Consumers' time is divided between lots of different media, which in turn means that a single medium approach reaches only a portion of consumers it did before. This 'demassification', as futurist Alvin Toffler put it many decades ago [38, 39], has intensified over the past decade. The range of media devices and alternate media communities on the Internet has provided a range of viable options for consumers. Indeed in *Being Digital,* Nicholas Negroponte posited that broadcasting will collapse and be replaced by an era of narrowcasting and niche media on demand. More recently, Chris Andersen explained in the context of his 'long-tail' theory that 'the era of one-size-fits-all is ending, and in its place is something new, a market of multitudes ([40], p. 5). Likewise, in the book publishing industry, consultant Mike Shatzkin heralds the 'end of the general book trade' [41].

Although the Internet can be argued to be a mass medium, it has too many 'channels' and does not privilege mass event-based viewing to qualify as a viable option. The response from marketing strategists, entertainment corporations and news organizations has been to champion a mixed media approach. This means they create many messages across a range of mediums, to reach the same if not more consumers they did with a mass medium approach. It is, like the content creation discussed in this paper, a trait of integrating media approaches: the power of a single point in time and space has shifted to many points in time and space.

3.1.2 Horizontal Integration

> "The traditional models of these businesses [advertising & entertainment industries] is under pressure, and one of the most significant ways in which businesses are coping with change is through alliances that benefit all sides."
> Scott Donaton ([42], p. xiii)

Beyond using a variety of media to reach audiences and consumers is the shift by companies to control both horizontal and vertical integration. Vertical integration refers to control over the different parts of the production process, whereas horizontal integration refers to control over the distribution of product in different markets. In the entertainment industry, horizontal integration refers to the merging of companies that have different markets (eg: AOL and Time Warner). It is also described as 'corporate convergence' and what Henry Jenkins calls 'economic convergence' [7]. Jenkins notes that this top-level movement has resulted in companies creating entertainment properties that are extended across a variety of media channels. This attempt to create a massive property, and the subsequent attempts to keep a consumer within the owned media, is known in industry as creating a 'walled garden'. It is here we can see the economic forces driving an integrated media approach, but also how integration pervades business infrastructure.

3.2 Cognitive Forces
This section will explore the cognitive drives to integrative practices. The factors posited here highlight shifts in the thinking of people in the context of media proliferation. These shifts then influence how media is experienced and created.

3.2.1 New Polychronic Cultures
In 1959 ethnographer Edward Hall observed what he called 'monochronic' and 'polychronic cultures' [43]. Monochronic cultures, he explained, do one thing at a time while polychronic cultures engage in multiple tasks at the same time. This notion has been explored comprehensively with studies into 'multitasking' but has been developed in light of the integrating media approaches, as media theorist Anne Friedberg observes:

> "Screen-based multitasking [using many computer programs] is only one form of multitasking. Using multiple screens (computers and TVS) or engaging in multiple activities (talking on the phone while 'watching' TV) has extended the meaning of 'multitasking' to a more pervasive cultural mode." ([44], p233-234)

Indeed, in 2001, Jenkins described what he termed 'social or organic convergence' as 'consumers' multitasking strategies for navigating the new information environment. […] It may occur inside or outside the box, but ultimately, it occurs within the user's cranium' ([7]). Studies in this area have been spearheaded by investigations driven by the need to capture consumer behaviour for advertisers. Two key studies have identified 'simultaneous media usage' (SIMM) [45] and 'concurrent media exposure' (CME) [46]. The SIMM study, first published in the *Journal of Consumer Behaviour*, describes SIMM:

> "as individual consumers being exposed to more than one media system or approach at a single point in time. In short, it describes the increasingly prevalent consumer activity of multitasking, eg being online and watching television at the same time, reading the newspaper while listening to the

radio, or reading the mail while talking on the telephone." ([45] p. 286)

Ball State University's 2005 study, *Middletown Media Studies 2 (MMS2)*, prefers to distance themselves to the notion of simultaneity:

> "We define CME as exposure to content from multiple media simultaneously available through shared or shifting attention." [47]

What both the studies look at, however, is how long people are using more than media, how often, what combinations of media they are using and how this alters according to gender, and when engaging in concurrent use, what media (and genre) falls into the background. Such studies not only highlight the different ways people are experiencing media, but they have also contributed to the creation of marketing 'content' that is designed for a multi-platform experience.

3.2.2 Transliterate Creators & Experiencers
With the growing uptake of different media platforms, people are becoming what researchers term 'transliterate'. A somewhat recent notion, it is being interrogated by the PART (Production and Research in Transliteracy) Group at De Montfort University. Sue Thomas, Howard Rheingold, Kate Pullinger, Bruce Mason and others are developing the field of multimodal (multi-media but mono-medium) literacy into 'transliteracy', which is described as:

> "the ability to read, write and interact across a range of platforms, tools and media from signing and orality through handwriting, print, TV, radio and film, to digital social networks." [48]

The exposure to and subsequent proficiency in a range of media devices and artforms facilitates, in other words, a larger palette for creators and a larger range of expressive mediums for experiencers.

3.2.3 Managing Multiplicity
Doug Brent, a hypertext rhetoric theorist, claims that the 'true power of a new medium lies not in what it makes possible. It lies in what it makes easy' [49]. It is the efforts of humans integrating media in novel ways that makes the proliferation of messages across a growing range of platforms and manageable. As I highlighted in the previous section, there are both the abstract (content) and technical approaches to integrating traditional and digital media. A key logic informing integration practices at the content and material levels is the managing of multiplicity, as 'everywhere' theorist and designer Adam Greenfield explains:

> "Probably the single most important thing that we need to wrap our heads around is *multiplicity*. […] How can we best design informational systems so that they (a) work smoothly in synchrony with *each other*, and (b) deliver optimal experiences to the overburdened human at their focus?" ([50], p216)

Indeed, in the first article Weiser wrote on the subject of ubiquitous computing, the cognitive-technical relationship figured prominently:

"Like the personal computer, ubiquitous computing will enable nothing fundamentally new, but by making everything faster and easier to do, with less strain and mental gymnastics, it will transform what is apparently possible." [31]

3.2.4 *From Convergence to Mono-Polymorphism*

In *Convergence Culture*, Jenkins describes 'convergence' as a word 'to describe technological, industrial, cultural, and social changes' (3). These changes are evidenced in 'the flow of content across multiple media platforms, the cooperation between multiple media industries, and the migratory behaviour of media audiences' (2). With a nod to Ithiel de Sola Pool, Jenkins reconfigures 'convergence' as having two sides: convergence and divergence. As Jenkins notes, Pool makes this observation through an analysis of political culture, whereas Jenkins applies these ideas onto contemporary American popular culture. Although Jenkins does argue that 'convergence occurs within the brains of individual consumers and through their social interactions with others,' his method is to observe the phenomenon convergence-divergence in artifacts.

In a parallel inquiry, but from a cognitive perspective (perhaps developing the spirit of Jenkins definition then), I have been developing the concept of what I term 'mono-polymorphism' [51]. Mono-polymorphism refers to a cognitive process of managing complexity through a dual process of unification whilst maintaining the integrity of disparate parts. Rather than condense the disparate elements into a hybrid form, which is the logic of technical convergence and intermedia art, mono-polymorphism attempts to retain the integrity of the disparate elements and instead shifts the boundaries of the abstract unifying principle. A cognitive approach to unification is infinitely more adaptable than a technical one. It is a process observable, I believe, in many parts of society but which I interrogate within the scope of contemporary fiction and non-fiction production.

In the present creation landscape, mono-polymorphism is evidenced in the uptake of multiple media platforms and the reframing of abstract boundaries around them. Rather than have hybrid, intermedia or interarts forms that are preassembled into a unified form, the contemporary practice of mono-polymorphism seeks to maintain individual artforms and media. The 'transmedia storytelling' and 'cross media games' examples cited earlier illustrate the use of individual media platforms with abstract unifications via increased dependencies and ludic frames. Increasing the dependency across transmedia forms is evidence, I argue, of a mono-polymorphic approach. Each media and artform retains its integrity whilst the units gain unity through the application of structural relations between them. However, this dual state of unity and disparate parts is not new.

3.2.5 *"Unity in Variety"*

New media literary theorist Jill Walker [10] explores the notion of unity in her analysis of electronic literature writers and scholars Nick Montfort's and Scott Rettberg's 2004 work *Implementation*:

"Distributed narratives break down the aesthetics of unity we have followed for millennia. They take this disunity a step further than the bricolage of postmodernism, by collapsing the unity of form as well as that of content and concept. Yet perhaps they also point to a new kind of unity." (11)

In her paper, Walker invokes Aristotle's dramatic unities from *Poetics* and summarizes them as 'unity' in time, space and action. To paraphrase Walker, these unities are expressed as dictating dramatic principles: a play should depict action within one day, within one place and be directed towards a single overarching idea. As Walker realized, the poetic notion of unity in an artwork is highly relevant to these integrated or distributed works. This section will delve further into unity and explain its relation to convergence-divergence and mono-polymorphism.

After Aristotle and Plato, philosopher Thomas Aquinas deems the characteristics of beauty as: *integritas*, *proporito* or *consonantia* and *claritas*. These values of beauty were translated by James Joyce in 1917 in his künstlerroman (novel of the maturity of an artist), *Portrait of the Artist as a Young Man*, to 'wholeness', 'harmony' and 'radiance' [52]. The first is described as: 'You apprehend it as one thing. You see is as one whole. You apprehend its wholeness.' While 'harmony' is explained as 'You apprehend it as a complex, multiple, divisible, separable, made up of its parts, the result of its parts and their sum, harmonious'. Here we see the dual process of apprehending a whole as well as relationships between parts.

Before Joyce and many other writers such as Coleridge, the concept was explored in 1714 by philosopher Gottfried Leibniz in his *Monadology* [53] as 'unity in variety' and in 1876 by experimental psychologist Gustav Fechner in his *Vorschule der Aesthetik* [54]. Fechner describes 'unity in variety' when 'an object is apprehended as beautiful to the extent to which it combines a pleasing variety within unity'.

The dual logic of variety and unity, therefore, has a conceptual and creative heritage observable over centuries. The urge to integrate media platforms whilst maintaining their integrity (not creating hybrids or converging them) could be seen, therefore, to be a long-held aesthetic (?) impulse. Is there, however, a neuropsychological basis for this apparent cognitive approach to the design and experience of artworks?

3.3 Neuropsychology of the Integrationist Urge

In the 1990s, psychiatrist Eugene G. d'Aquili and radiologist and religion researcher Andrew Newberg joined forces to investigate the behaviour of the brain during a religious experience. Sidestepping the insights into the experience of religious states they provide because it is not within the scope of this essay, I will refer to their observations of a 'unitary continuum'. In their [55] paper on the neurophysiology of aesthetic and religious experience, they draw on research into positive (Apollonian) and negative (Dionysian) aesthetics; research which argues for something to be perceived as a work of art it needs to have wholeness (*integritas*) and harmony of parts (*consonantia partium*) as is the case with Apollonian

aesthetics, and wholeness in fragmentation (*integritas in fragmentatione*) in Dionysian. D'Aquili and Newberg discover this *integritas* and *partium* or *fragmentation* urge has a neurological basis, as they elaborate with their theory of 'cognitive operators' [56].

Labeling activity in parts of the brain, d'Aquili and Newberg explain that the seven primary cognitive operators 'comprise the most basic functions of the mind' ([56] p.51). There may be more, but they argue that the seven are fundamental functions that 'allow the mind to think, feel, experience, order, and interpret the universe' ([56] p.51). The seven cognitive operators are: holistic, reductionist, causal, binary, quantitative and emotional value. What is relevant to this argument is the holistic and reductionist operators.

The holistic operator 'allows us to view reality as a whole or as a gestalt' and the reductionist 'to look at the whole picture and break it down into an analysis of individual parts' ([56] p.52). The holistic operator possibly resides in the parietal lobe in the nondominant hemisphere, while the reductionist is in the left parietal lobe. Since I am not a neuropsychologist, I will not attempt an explanation of the correlation between cultural behaviour and these cognitive operators. I do draw a hopeful line, however, between this observation of holistic and reductionist activity and the process of mono-polymorphism both in creator and audience behaviour. That is, it is possible that the 'unity in variety' principle championed over centuries is a neurological urge governed by an interaction between what humans describe as holistic and reductionist operators. In the context of contemporary media proliferation and complexity then, it is manifesting in the drive towards integrated multi-platform practices.

4. CONCLUSION

At the beginning of this paper I argued that envisioning a future of digital-media cultures is somewhat exclusionist and counter-intuitive to the call for possible futures. Digital media is one part of a media ecology that is increasingly becoming integrated in conceptual and technical ways. It is hoped the extant examples and economic and cognitive drives offered here attest to the likelihood of integrative practices increasing. Digital media and digital media cultures will remain a key force in this integrated ecology. They will be transformed, however, by the urge towards integration. A perhaps accurate metaphor for the future is that posited by interaction designer and theorist Mikael Wiberg (after Zygmunt Bauman), in his paper on conceptual approaches to cross-media interaction design:

> "In a nearby future we can assume that media will move freely across different technological platforms, across different media formats and across different networks. Media will in this sense appear more as a liquid than solids." ([57], p63)

As I have argued here, it is not just media, but the structural relations engineered in the content and media use that will exhibit this characteristic of liquidity. In the final section I highlighted the dual approach of variety and unity. Rather than a future where media will converge, the integrity, the affordances of media forms will be upheld. In the context of

hardware convergence then, the long term future is the creation of mutable delivery technologies for a phone that can play television is not sufficient for a shared social experience. A mutable substance, then, one that can be squashed into a small screen and placed into your back-pocket and then stretched into a cinema screen in your backyard, is appropriate to a culture literate in many media forms and affordances. In the context of content creation, I believe many works will be informed by a drive towards unity and harmonious relationships.

The gap between traditional and digital media will be bridged by invisible but pervasive connective technologies and dependencies at the content level. Indeed, connective technologies will become a medium in itself. New media researcher and artist Julian Bleecker has reframed science-fiction writer Bruce Sterling's 'spimes' (space + time) [32] to 'blogject': objects that blog [33]. He explains the implications:

> "It means, in simple terms, that Things, once plugged into the Internet, will become agents that circulate food for thought, that 'speak on' matters from an altogether different point of view, that lend a Thing-y perspective on micro and macro social, cultural, political and personal matters." ([33], p16).

The near- to long-term future of digital media cultures is one where digital media is but one part of an integrated media ecology. Digital media cultures will co-exist with traditional media cultures; but a new integrating media culture is emerging. Due to the economic, artistic and cognitive urges posited here, the process of integration will increasingly be a primary concern of corporations and individuals alike. Indeed, the integrationist urge will manifest in many parts of society, in logically and intuitively envisioned and also delightfully unanticipated ways.

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