Design of, and the Identification of factors involved in the digitisation of the Comic Book

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The total length of the dissertation (text and footnotes) is .9,839 words.

Candidate's signature:

Abstract

This study looks at the relevance of the comic book to culture. It attempts to show that beyond the significance and the meaning conveyed in the medium, is the material form of the comic that is just as relevant as cultural and historical evidence. This project goes some way to highlighting the considerations that need to be made in looking at the digitisation of comic books and related forms for preservation and further and enhanced access for academic study. A number of exploratory prototypes have been created to illustrate the difficulties involved and to provide a platform for further research and development in this area.

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Introduction

Its form is nothing new, but the content in visual narration and sequential art; more formally known as the comic book is ever changing; evolving; and becoming increasingly challenging. The subject itself has been viewed as trivial; childish, controversial and sensationalist over the years, but the comic book, as with all art and literature, provides a valuable contribution to culture and contemporary society in numerous different ways. As a result, should it not be preserved in such a way that its cultural influence and form can be studied as well as appreciated for future generations?

Throughout this piece it will be my aim to show that not only is the comic book a vital part of today's culture but also a viable media vehicle worthy of academic study and appreciation. Comic books not only provide an artistic focus of the time but also a vital sociological commentary on the ideological themes of its generation.

The Comic Book as an invaluable piece of Culture

If you were to draw a timeline of visual narration it is argued that the timeline would stretch as far back as 3000bc, with the Egyptians engraving stories on the walls of temples, tombs and other such buildings. The materials used would change over the centuries; fresco painting at the Tomba Delle Iscrizioni in Italy; embroidery such as the Bayeux Tapestry depicting the battle of Hastings in 1066; canvases; paper scrolls; wooden blocks; pencil and inks. It is however, the current iterations of visual narration that we are interested in: the comic book, the comic strip, manga, and the graphic novel. The comic is as relevant to modern society as a form of visual narration and historical evidence as it was in the form of these Egyptian wall paintings and engravings of 3000bc, Japanese Satire in 500ad, Japanese manga, and British political caricature of the 18th, 19th and early 20th century.

Stereotyped as being sensationalist fiction for children and adolescents and still described in the Oxford English Dictionary as "a children's periodical containing comic strips", the view of the comic book among some audiences could be considered inaccurate, misunderstood or restricted. The reality is that the comic book is a valuable form of communication and expression capable of communicating a message to a very large audience ranging from child to adult. The comic book is also capable of traversing further boundaries, be it different classes of individual, or communicating to different cultures. With visual representations at its heart, the comic book can even break free from the shackles and limitations imposed by the language barrier.

Different from a newspaper or magazine, books or a painting, the comic as we know it is a relatively new medium relying on the interaction of words and pictures, and the placement of pictures one after another showing the sequence of time. Nyberg (1998) suggests that being a new medium it also has its own highly developed conventions of interpretation that bare more resemblance to film than to literature and drawing.

Bridging a gap between literary art and drawing it is a very different art form, bound only by the imagination of the writer and the artist behind it, not by the definitions and views surrounding it. Within this paper we will look at the comic book and what it achieves as an art form and its contribution to culture and contemporary society as well as how it is important as historical and cultural evidence. We will look at how the art in the comic book reflects society and contemporary culture, how the comic book might shape and reflect parts of modern culture in addition to how the comic book represents a unique culture of its own.

From the perspective created that the comic book is an important factor in our society we will then look at the importance of digitisation for further and enhanced access to comic books. We will identify the factors affecting the decision to digitise the comic book and the factors affecting decision-making during the digitisation process itself.

Creating a number of exploratory prototypes it is hoped that we can highlight some of the ways the comic book achieves what it does as a unique form of artistry and expression; the prototypes although exploratory in their nature should help to provide a base for further research and development in the creation of a digital edition. Separating the content and form of the comic book from additional scholarly material it is hoped a solution can be found that will allow for effective study of the material while preserving the page turning tradition of the comic book.

The Comic Book

"*More likely, however, manga will give a far truer picture of Japan, warts and all, than "highbrow" tea ceremony or Zen ever could. As a form of popular culture, comics of all nations tend to be tightly woven with local culture and thought. In translation, manga-especially-can be both a medium of entertainment and a Rosetta stone for mutual understanding*" – Frederik Schodt (1996)

In 5000 years time when a copy of Action Comics #1 is discovered, wrapped in polythene and buried underground in the excavated ruin of a 21st Century building of some description, the archaeologists who find it might wonder about the man who can leap $1/8^{th}$ of a Mile; Hurdle a 20 Story Building; Raise tremendous weights; Run faster than a speeding express train and why nothing less than a bursting shell could penetrate his skin. Action Comics #1[1] is the comic book containing the first published Superman story, published in 1938 and written by Jerry Siegel and Joel Shuster. In 5000 years, while those who find and study this artefact may or may not be incredulous about this mans physical capabilities (after all, human physical structures may have started to catch up with that of Superman), they may begin to wonder and investigate about the existence of the death penalty and the electric chair; the possibility that there is even *suggested* corruption in the government; and the existence of forms of transport such as the express train and the automobile; and aside from what we discover from reading the comic, questions may also be raised about why a simple 10 Cents pamphlet has been wrapped in polythene and kept so carefully for it to be preserved for so long; and should humans not have advanced in physical structure, they might also wonder why someone has drawn a story in the first place about a super man from a distant planet.

Schodt distances Manga from other comics, due to its varied; highly personal; introspective; philosophical and ever changing nature of form as well as sheer volume produced and rapidity with which it is consumed in Japan. In reality however, *all* comics can be a medium of entertainment; high-art and can provide a method for mutual understanding of, and within, a large populous of individuals around the world.

Being a medium of expression in its own right, but drawing from Art and Literature, the comic book can be just as effective, if not more so at communicating ideas. The comic book, as in art and literature, are a reflection of the time they were created in; they can be used as an exploration of self; ones identity; and one can use it as social commentary. We can look at art to study the techniques used; how to decipher its content and understand the concepts; theories; ideologies and beliefs put into creating a piece. We can similarly look at literature, also looking at the reasoning of the writer, the messages in the text, the use of language and the context of the writing. We want to understand the motivations of the artist in both forms and want to understand how they have created their work. Therefore should we not treat the comic book with the same amount of respect that we do the Mona Lisa or one of Shakespeare's plays?

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[1] http://superman.ws/tales2/action1/?page=-1 - accessed 10th October 2005

The comic, it is argued, has developed from a form closely connected to its time of creation in political caricature and satire. Alan Moore, writer for comics such as 2000AD, and graphic novels with highly charged political backdrops such as V for Vendetta is cited in Sabin's, Adult Comics: An Introduction, as saying – "All comics are political". And while some may argue against Imperialist ideological undertones in Disney's Donald Duck[2], the expression of political viewpoints has continued as a trend from this point and throughout comic book history.

William Hogarth political satirist in the 18th Century is credited with refining sequential images and visual narration adopting a number of techniques found in today's comics; James Gillray, political cartoonist in the 18th and 19th century used the form to good effect combining the narrative and visual to create hard hitting and powerful commentaries on the politics at the time (Figure 1). Works of this type could be found in expensive broadsheets where the readership was expected to be monied, educated and middle class[3]; they would however, also be found in lower class prints, (some of which were pirated), where the circulation of the print could reach figures of around 100,000 per week.

Changes in printing technology saw the distribution of 'humour magazines' focusing on pictorial content. With different publications for the working and middle classes they still focused on caricature, and political humour, they also included funny stories and slapstick. Magazines such as Punch (1841)[4], Funny Folks (1874), and Ally Sloper's Half Holiday (1884) saw their popularity grow. Crucially Ally Sloper's Half Holiday was able to articulate the feelings of its readership among both the working and middle classes and at the height of its popularity had a circulation of 350,000 per week. Publishers soon capitalized on the

Figure 1. James Gillray: The Death of Admiral Lord Nelson - in the moment of Victory!

formula of Ally Sloper's Half Holiday and by 1890 two comics, Comic Cuts and Illustrated Chips had circulations in the region of half a million between them.

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[2] Dorfman, et al. (1975)
[3] Sabin (1993)
[4] Later an inspiration for the release of *Japan Punch* (1862) in Japan by Charles Wirgman, (English-Language but concerning Japanese themes)

Continuing the trend, comics throughout history have focused on social criticism, and politics. The counter-culture movement in the 60's and early 70's saw comics as an outlet for political opposition at the time of Protests about the Vietnam War, the civil rights and women's movements[5]. While the message being pushed permeated large numbers of subscribers to the counter-culture it also saw the emergence of new artists who, taking advantage of alternative methods of printing and publishing found comics to be a solution and an outlet for the expression of their own beliefs and values.

Counter-culture comics contained themes of sex, drugs and 'radical-politics'. Sabin highlights that compared to those of the 18th and 19th Century they were capable of being satirical *and* revolutionary. Counter-culture comics or underground 'comix' began with the self published Zap. Created by Robert Crumb and published by Don Donahue and Crumb himself, they stapled the original copies together themselves and sold them on street corners. The popularity of zap saw it re-printed where it sold in its thousands and its distribution move beyond San Francisco and throughout America. McAllister et al. (2001) argues that underground comix influenced current comics and the social messages in them.

While such overt commentary and criticism disappeared somewhat in the field of comics, publications such as Viz came to the fore – a self published title with a first run of just 150 providing among other things a satirical look on the public opinion of comics. Fantasy and Superhero comics provided a medium for artists to make statements about the world such as Alan Moore with Swamp Thing (1983) and Frank Miller providing a political edge to Batman: Dark Knight Returns (1986); Conan the Barbarian is argued as developing into a complex satire on everything from state power to organised religion. Althouse (2001), looking at the British comic Judge Dredd, states, "Dredd's early appeal hinged on the readers ability to participate in the creation of meaning in relation to social fallout created by Margaret Thatcher's reform initiatives during the 1980's."

"We transmit values through the work…" – Fingeroth (2004)

Not all comics are political; some science fiction comic books may be considered pure escapism, some examples of visual narration have been created purely for educational and instructional purposes; but many works as in literature, however trivial they may seem, contain some level of bias reflecting the society in which the piece was created or the authors own ideological beliefs.

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[5] Sabin (2003)

Short (1965) examines the relationship between the Christian religion and popular comic strip Peanuts by Charles Schulz; in creating Maus, Art Spiegelman presents the story of his father's survival of Auschwitz in the Second World War as an allegory, presenting the races and religions of the characters within it as animals, (Jewish - Mice, Germans – Cats, Polish – Pigs, American – Dogs) in using such simple metaphors and various literary techniques, (Auschwitz becoming Mauschwitz in certain cases), it serves to show the behaviour of human beings at various points at its most primitive, base and vile; Fingeroth himself presents a comparative look at the expansive field of the comic book superhero, looking at how the superhero represents a metaphor personal to the individual reading it -showing us all how to rise above our fears; a metaphor asking us to look into ourselves asking questions of our ability and our identity, and representing our need to dream…

It is these values, ideas and concepts that we are interested in with the comic book. We are interested in the significance and the meaning of texts, the way in which values and beliefs are transmitted and consumed – thus, the effect of comic books on society, and concurrently the effect of society on the comic book.

While the popularity of the comic book is not what it used to be, the form has reached millions of individuals and more over a hundred year period[6], reaching many homes every day in the form of various comic strips[7]; and also reaching various numbers of individual readers over the years in the form of comic books: Superman reaching sales of over a million per issue in the 1940's, 500,000 in the 1950's, even now issues still sell 125,000 copies per issue[8]. The numbers that comic books have reached means that any impression left on the readers, however small or however trivial makes the comic book culturally significant:

Further, drawing from the study of book history Eliot (1998) points out the particular significance of the book to culture, and culture on the book:

> "How did economic, technical and social context in which the book was produced affect its development, its content, its appearance, and its reception? How did the book as a communicator of ideas, values and experience affect the society in which it emerged?"

He highlights the pressing importance for the study of the history of the book in particular:

> "Unlike tables, chairs, bread, wine, guns, shoes, carpets, or cars, books are intended to have *specific* intellectual and emotional effects on those who use (read) them. Books therefore consciously aim to influence, and sometimes change, the economic, social or cultural circumstances in which they were produced."

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[6] Including Manga, and other comics outside of Britain and the U.S.
[7] 1984 saw Peanuts printed in 2,000 newspapers worldwide
[8] Fingeroth (2004)

The comic book is rich in cultural value, for the significance and meaning in their texts alone. It is also clear however that beyond the study of the value in their text, drawing from the history of the book, other factors need to be taken into consideration that reveal more about the comic book and about the time in history within which a particular comic comes from:

Take for example Hogan's Alley, cited as being the first modern newspaper comic strip. Appearing in (1896), McAllister points out that, no strip appearing in current U.S. mainstream newspapers today comes even close to portraying urban blight as starkly as did Hogan's alley.

Further, drawing an example from Fingeroth on the Superhero:

"More than ever the ordinary fictional hero-has to represent the values of the society that produces him. That means that what, say, Superman symbolizes over time. In the 1950's he may have been hunting down commies. In the 1970's, he may have been clearing a framed peace activist against a corrupt judicial system. Either way-the hero does the right thing. Perhaps more importantly, *he knows what the right thing is.* "

And finally, from one of our examples above, Judge Dredd:

"Dredd's early appeal hinged on the readers ability to participate in the creation of meaning in relation to social fallout created by Margaret Thatcher's reform initiatives during the 1980's."

Our first two examples reveal something about the meaning of Hogan's Alley and Superman respectively, but both require some form of clarification on the social context. Is the urban blight described unique to Hogan's Alley? Was it a universal theme that reflected in the distribution and the readership of the paper the strip featured in? The answers to the questions asked about Superman may be a little more obvious; for example, why would he be hunting down commies in the 1950's? Is there a specific motivation behind the activism in the 1970's? Is there any specific case reflected involving the judicial system at the time?

It might be possible to collect Hogan's Alley comic strips from its run in the late 1890's, or Superman comics from the 1950's and 1970's. It might also be possible to bind these in an academic 'edition'/'collection' that is augmented with information providing this social context in the form of newspaper clippings or commentaries on particular cases that either comic is referring to. However, what happens when you need to reference the 'urban blight' in Hogan's Alley with the thousands of other strips from across the U.S. over a 109-year period? What happens when you want to reference Superman with his publisher counterpart Batman to see if batman was fighting commies in the 1950's? Or if he was fighting the judicial system in the 1970's? Or indeed what either was doing in any decade since the 30's? What happens when you want to compare Gotham City with Metropolis?

Judge Dredd further highlights the issue. Althouse (2001) puts the situation in 1980's Britain into context by first highlighting the relevant issues in the comic:

> "Citizens in the imaginary world of Mega-City One cope with a number of pressing issues germane to citizens of Thatcher's Britain. First, unemployment is rampant. Without jobs, citizens face and often succumb to the lure of illegal activities. Second, residents of Mega-City One are forced to limit their freedom of expression. Because of the pervasiveness of crime, Judges try to maintain order by demanding citizens' conformity. Consequentially, people could not speak, act, and-in some cases-think freely. Third, law and order are paramount concerns for Judges. In Mega City One, authorities assume that all people harbour criminal tendencies. Therefore, Judges enforce statutes rigorously."

He argues that fans reading the strips at the time could discern the situation in England and see Thatcher's own 'austere' policies as being paradoxical; relating personally to those highlighted in Dredd.

Concluding his paper, Althouse states that Judge Dredd presents its readers with rich texts, full of subtleties and ambiguous readings. He offers therefore, in light of work by Surber (1998) – "signs must be recognized as polysemic, that is, capable of taking on various values or meanings depending on the various systems in which they almost always functioned", – that its readers will produce unique answers to questions raised by this text, but highlighting the questions in relation to the political climate of the time, he discusses:

> "Joe Dredd and his fellow Judges are cold, ruthless officers of the law; the citizens of Mega-City One exhibit criminal tendencies. Are the Judges of Mega-City One unnecessarily heartless? Was Thatcher wrong to advance her vision of a better England?"

Therefore in order to understand the history of this text and understand its effect on readers and possible interpretations, before we even look at further alternative readings, it asks of us to provide information about its social, political, and economic context which includes information about government policies at the time; information about news events; possibly - crime rates; it will require looking into the magazine that the strip was released in, the class of reader the magazine was oriented at, the number of readers it had, any political bias in said magazine, some identification on the popularity of the strip and more.

Again, it might be possible to collect such information in a form of scholarly edition along with texts relating to the subject, or selected bibliographies, but it is clear to see how the study and dissemination of this material could begin to become rather complex, rather quickly.

To collect what we need to study the comic book thoroughly and make it as accessible as possible to academics across the globe, paper editions soon become impractical, if not, impossible to bring together. With the level of accessibility provided by the Internet and with the digital tools that can be provided to aid in the dissemination of material and study of the comic book, a solution presents itself in its digitisation.

Digitisation of The Comic Book

"An appreciation of any cultural phenomenon is greatly enhanced by an understanding of the context in which that phenomenon emerged. Historical settings, sociopolitical thinking, intended audience, and the artist/author's motivations are important issues of context." – Roberts (2003)

The creation of a digital edition of a comic book allows us to draw together a large body of information that will allow us to understand, interpret and appreciate its form that could be argued as being too vast for a paper edition. Contextualizing the comic book requires we draw information from the surrounding culture of its time looking at its historical settings, intended audience, and sociopolitical thinking. Of equal importance to the drawing together of contextual information for the understanding of the comic book is the digitisation of the physical book itself.

In order to digitise the comic book it requires that we look beyond significance and meaning in its content and into its own material culture to understand how the comic book functioned as a product of its time. We need to look at the comic book to discover what is important about it that needs to be included in its digital form.

There are clues to the importance of certain elements in the historical examples of comic books we have looked at:

Binding and Publication: The front cover to a comic has little to do with progression of the story within. To look at a comic book produced by a mainstream publisher and not see the symbol reading "Approved by the comics code" would probably mean it was published before the reform of the comic book industry and the implementation of the comics code in 1954. Before this there were no limitations on the themes expressed within a comic and no limitations on the advertising material.

Handheld and Portable: Did the growth in popularity of Robert Crumb's self published Zap occur because it was easy to pass from one person to the other? Japan produced 2.3 billion manga books and magazines in 1995, but the actual readership is far higher because of the practice of, mawashi-yomi – the practice of one manga being passed around and read by many people.

Dynamics of Publication: How does the serialisation of a comic effect the perception of the reader. Before being collected into a single volume did readers of Maus feel closer to Vladek Spiegelman reading about him in six parts over a longer period of time?

Letters Pages: Also relating to the dynamics of comic book publication, Franklin (2001) shows that through letters pages the audience takes an active role in the direction and maintenance of the comic, and that through the letters pages the fan is in the position to determine the direction of the plot. He also shows that the reader, through letters columns in comics has the potential to move from a position as an isolated individual, separate from the text, to part of a discourse community.

Two prototype digital comics will be created to help reveal more about the achievements of the physical comic book. The first prototype will be a handheld comic book viewer created on a Nintendo Gameboy Advance. The Gameboy was chosen partially because the advertisements for games for the console in contemporary comic books are seen as reflecting the culture closely surrounding those who read the comic books. It was also chosen for the fact that it is handheld and updateable. Although the price of a Gameboy is expensive in the first place, digital comic books could be made available for it and uploaded to the device for free.

The second prototype is a more conventional method of presentation in a Macromedia Flash comic book. This method was chosen as it can be accessed over networks through a web browser with the correct plugin. An executable can also be made of a flash presentation wrapping it within a flash standalone player that can be used on either Windows or Apple Macintosh platforms.

A Questionnaire was also created to help reveal more about the achievements of the comic book. The procedure for the Questionnaire and the Questions used can be found in Appendices i and ii. The questionnaire looks to discover general opinion of the comic book, values placed in them and the potential for a digital comic book.

Prototype

The development of a prototype focused primarily on the creation of a secondary viewer for a digital edition. A secondary viewer would entail displaying the comic book separately from the main body of work in the digital edition so that the comic book could be used in the same way one would use a comic book normally. To achieve this a handheld device was chosen for us to experiment with a small number of limited prototypes for a digital comic book. A Macromedia Flash comic book would also be created as a more convenient method of displaying a comic book digitally using a web browser, or as a flash executable on the computer.

A Nintendo Gameboy Advance games console was chosen as the handheld viewer, this was done for a number of reasons. The Gameboy, although a games console reflects a number of important features found in the comic book, it is portable; it is hand held and convenient; and should paratextual information in the comic book reveal anything about its readership then the comic book and games console belong as part of the same culture. It also makes up for a number of failings one might find in comparable handheld electronic books (e-books), such as price, size, and having a full colour and backlit screen.

The influences on the prototypes being created can be categorised by their contexts. Technical Context looks at some of the achievements working in digital with regards to e-books, and more importantly the work done with digital and the comic book. Physical Context looks at the work done in preserving the hand held nature of books by providing electronic devices that imitate the form:

Technical Context:

Project Gutenberg is a website dedicated to providing free e-books to users. The books are stored primarily in text format, (therefore users only get access to the information in the book); file sizes are kept low and are easy to download. Commercial sites such as Amazon.com allow users to purchase e-books. These are usually in Adobe PDF format as scanned images of the original book. While more importance is placed on the physical and material nature of the comic book in this project (i.e. scanned images alone will not provide a good enough representation of the comic book), the advantages of such e-books lie elsewhere, in access: with close to Two Million downloads of just 16,000 titles from Project Gutenberg in a 30 day period in September.

E-Books from sites such as Amazon.com can also offer users antiquated or rare books that are too expensive for many at the same price of the latest crime thriller. New materials are also appearing in digital form only, Amazon.com now offer short stories from various authors that can only be purchased online. Text size can be varied and font can be changed to make the reading experience tailored to suit the user.

Drawing from examples described such as Project Gutenberg and Amazon.com creating a digital comic book will hopefully increase the access and the number of viewers who read it. Antiquated and rare books, comics such as the original Superman can be made available in digital form and made available for no extra cost to the user with no persistent wear on the original comic. In managing to do this, old comic books that may no longer be in wide circulation can be looked at and read by fans of comic books, but the books can also easily be looked at and studied in depth for academic purposes.

Comic books and Manga can already be found in digital form. One form of Manga available on the Internet is in the form of Scanlations. A scanlation is a scanned page of Manga that has been translated into the English language. It is usually fans of a particular manga series that make these episodes available. As a lot of manga remains in Japanese and does not make it into the Western domain, fans taking it upon themselves to translate these books into English allow a large number of people to read certain texts that would otherwise remain unavailable. Scanlations are available to download on the internet and there are a large number of sites that specialise in one particular series, or larger 'portal' sites that offer links to many more episodes and other collections elsewhere. Table three describes three sites that make scanlations available:

Site	Description
www.ear-tweak.com	Ear-Tweak the creator of this site focuses on the scanning and translation of a single manga series – Inuyasha by Rumiko Takahashi. Ear-Tweak translates the pages herself and provides translation notes on every chapter scanned so that the reader understands any western bias introduced through translation. 8-10 Chapters of the manga are made available at any one time. Additional material is available on the site relating to the manga such as information on the Anime, Films etc.
www.directmanga.com	Direcmanga.com is a server dedicated to scanlations and anime episodes. Episodes are scanned and translated by a third party and sent to directmanga for hosting. Directmanga has a large collection of scanlations available and the collection continues to grow as the third party translates them. Users can register on this site for better access to each episode. Directmanga also have a message board for users of the site to enter conversation and discussion about the manga that is hosted by the service, and to share conversation on other related subjects.
www.sakura-crisis.net	Sakura-Crsis.net is another scanlation site that make available a number of titles that are unlikely to make it to Western audiences as English language manga. The three hosts who run the site translate manga they own and those sent in by other individuals and host it for general access. The site also offers links to other sites that offer scanlations and related manga links, it also has a message board for discussion of the manga and hosts fan artwork in addition to other related materials.

Table 1: A selection of Scanlation sites on the Internet

Scanlation provides an important example for our prototype and provides for us a number of questions that need looking at in relation to the study of the comic book. First we have an example of digital being used as a method of providing access to a form that would otherwise remain unavailable, it also sees digital being used in the modification and translation of these texts into English language. This should pose the question as to what is important about these works to make these fans take such considerable effort to translate them, and secondly to make them available across the internet.

There is a large culture of scanlation sites on the Internet, this is just a small selection discovered during the research of this project. Manga episodes available on these sites are scanned as JPEG, GIF or PNG image files. These can be viewed as separate images in image display programs such as Windows image viewer or Fax Viewer, or image editing programs with browse facilities such as Paint Shop Pro. An alternative is a special viewer created by David Ayton called CDisplay[9].

Created because existing programs for viewing the three file formats were too general purpose, CDisplay allows users to view images sequentially more conveniently. It is accepted as s standard program for viewing scanlations and scanned comic books online, the entire program will fit on a single 3 $\frac{1}{2}$ inch "floppy" disk. Scanlations or Scanned comic books are stored within archive file formats, ZIP, RAR, or CBR and CBZ, this program and will display each image one by one. The user uses basic controls to navigate the comic or manga. CDisplay mimics a book more closely than other viewing devices on the PC, closer to the vision of Sowden from the Hewlett Packard Nova project. While still on the PC the program limits multitasking by reducing access to alternative windows through the windows toolbar. The program maximises over the top of all other programs being used at the time, including the toolbar, focusing the attention on the comic browser. Any number of comics can be loaded within the viewing platform and the user can begin to read the comic as they would a book in their hand, with nothing else to think about on the PC. The only method of escape from this program it to close it down via the escape button or to use the Alt-Tab keys to switch windows; the program remains maximised behind the newly switched window at all times doing the former.

Western comics are available for this viewer in the two formats .CBR and .CBZ. These are more difficult to find than Manga and Scanlations. Comic books generally have to be downloaded using special searches for the file types within search engines or using peer-to-peer file transfer software.

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[9] http://www.geocities.com/davidayton/CDisplay - accessed 2nd October 2005

Two more methods of viewing comics digitally that need to be covered are the preview services offered by publishers such as Marvel or DC comics. Both these publishers allow users to view comics online in the form of previews of upcoming issues and selections of other comic already released. The previews provided are poor image quality and only allow for basic scrolling navigation using Adobe Acrobat Reader. Previews are stored as PDF files. The quality of image presented by Marvel or DC is in contrast to the scanlations or scanned comics available as these come in the best resolution for reading the comic but while keeping file size low enough to be hosted on the Internet. Presumably the low quality image is to prevent others copying and using the comic images illegally.

Physical Context:

A major criticism of the e-book is reading the text on a computer monitor, some find reading from a monitor too long hurts the eyes and some do not find it comfortable. The handheld and portable nature of a book is lost when using the PC or a laptop. PDA's and E-Books look to make the e-book more portable and convenient but a problem arises with these in the cost. For example, a Sony Librié E-Book costs around £237[10], it also needs to be shipped from Japan. Printed books can cost anything from 99p upwards, libraries are still an option, and even though any number of e-books can be uploaded to readers of this sort, as noted many available for free, a book costing this much is not a viable option for many, however, Ling (2004) points out that if an e-book was marketed as a constantly updateable periodical, there is no telling who might be interested.

The handheld e-book has advantages over reading an e-book on the PC or on a Laptop. Anthony Sowden designer of the Hewlett Packard 'Nova' E-Book project describes:

"There is a huge ergonomic difference between browsing (at a pc) and reading printed material. But it's more than that, he claims. "The PC is set up for multitasking, the Windows operating system is designed to have multiple windows open at the same time and to allow the user to switch between them. When you're reading a novel, that's all you're doing," said Sowden."

Sowden set out to design an e-book that mimics a book, not a PC. The device looks to create a similar experience to reading a book by providing multiple viewing options such as a 3D view, 2D landscape or portrait page views. It will also allow users to place bookmarks and thumb marks to mark where they are in the reading of a particular text.

While a handheld electronic book goes some way to keep the book a physical artefact that we can use in the same way we would use a book, it does not necessarily make up for a large body of information that can only be discovered in the original and physical forms of texts:

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[10] http://www.japan-direct.com/cartitem.asp?prodid=552 - Calculated 30th September 2005, Accessed 30th September 2005

Eliot (1998) describes that for the most part; the study of literature will involve studying the 'meaning' or 'significance' of texts. He points out that although it may not be absolutely necessary to look at the historical context of the way an author's contemporaries consumed a text; it is vital that you understand how texts are produced and consumed today. Eliot draws from two examples, Tristram Shandy by Laurence Sterne and The Charge of the light brigade by Lord Alfred Tennyson.

Tristram Shandy was released as a number of discrete volumes over a eight year period, Eliot argues that this must have had an effect on how Sterne's contemporaries responded to the work as a whole, as must the way the work is viewed now by those purchasing the collected work as a single volume. The Charge of the Light Brigade was released in the pages of The Examiner magazine, this work would have been surrounded by ephemeral, political and social comment and was released only a week after Tennyson had read an account of the charge in the Times, Eliot argues that to some readers this must have seemed like an editorial in verse.

As looked at in Chapter Two, there are a number of other factors that may affect the reading of the book, that also relate closely to the form of the comic book. In short though, the physical form of a publication affects meaning, and a large proportion of this physical 'information' is lost in the digitisation of any material.

The aim of creating a secondary viewer for the comic book will be to separate the original artefact from the additional, potentially perception distorting information that would be included in a digital 'scholarly' edition, but even more so, the creation of the secondary viewing device or program will look to achieve a balance such that as much of the physical and material nature of the actual comic book can be preserved, resisting temptation to remove ephemeral information, reader commentary, and other important 'physical' qualities and attributes. To allow the comic to be consumed by it's readers in a state as close as possible to its original physical form.

The two digital versions created in this project are based partially on a concept from McCloud's Reinventing Comics. McCloud (2000) provides us with the first criteria for judging the success of the prototype; four have been outlined in total:

1: Spatial Juxtaposition

McCloud (2000) describes the temporal map and the relationship of each frame in the comic, spatially from one another - every element in the comic has a spatial relationship to every other element at all times:
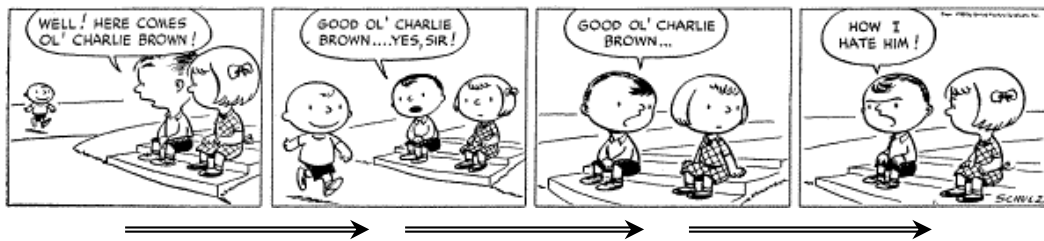
Figure 2: The Temporal Map

Figure 2, the comic strip depicted is considered as being spatially juxtaposed. The temporal map runs horizontally through it, from left to right over a space of a number of square inches. We could however rearrange the comic in any number of ways and this temporal map still remains, see figure 3. The temporal map is just a single path from one moment to the next – time elapses as the reader explores the space the series of frames occupy.
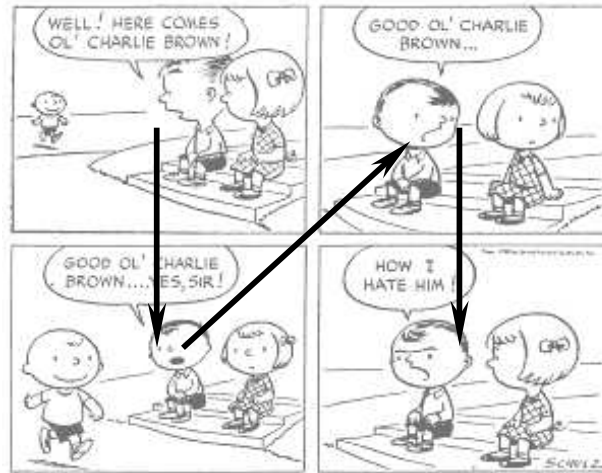
Figure 3: Spatially Juxtaposed

It is a quality of comics that separates it from individual pictures, animation and film. Managing to preserve this characteristic in our digital comic is our first criteria for judging the success of our prototype.

It is argued that because of the resolution difficulties experienced on a computer monitor, an average digital comic will only present the information of roughly one half page at a time, as such it is a temptation for those converting a comic book to digital to separate the comic into its individual frames and present them one by one. Apart from the difficulties that would be experienced with more modern comics where frames on the page are no longer simple bordered squares, presenting a comic book one frame at a time would significantly effect the reading experience by forcing the reader to consume the book in a different manner, and would make the digital comic nothing more than a digital slideshow.

2: Preservation of Form

The second criteria for success will be to preserve an entire comic as closely as possible to its natural form. As looked at in chapter two, everything in a comic book provides a representation of a particular time and culture. While the literary and artistic value of the comic book is one of the key areas we would like to study, the additional material surrounding the comic book provides further reason to look at the comic book more closely. Also noted in this chapter, the additional ephemeral material and readership comment found within such materials affects the way the comic book is consumed by culture and is likely to effect the perception of the readers. While there is no problem studying the comic for its art and literary value it causes issues when we wish to study the culture surrounding it at the time it was published. Maintaining the comic book as it was first published offers a unique insight into the cultural focus of the time through advertisements, promotions and even the price.

3: Preservation of handheld nature of the comic

The third criteria for success will be to preserve the handheld nature of the comic.

4: Focus of reader's attention

The fourth criteria will be an attempt to keep the readers attention focused purely on the comic and no other tasks surrounding the device the comic is displayed on.

Method:

The first digital comic created for this project was for the Nintendo Gameboy Advance:

As noted above the Gameboy was chosen for its portability and convenience. It has a 2.9-inch TFT colour display that can handle 32,768 colours and should display colour comic books adequately. Potentially any number of single images can be presented on the Gameboy display, however it is possible that memory limitations will prevent us from displaying bitmaps of any significant size. The main advantage of the Gameboy over other hand held viewers and e-books is that it can be bought cheaply and exists as part of the same culture as comic books. For those who cannot purchase a Gameboy numerous emulators exist that run Gameboy executables on the PC. Included with this project in the Programs folder of the CD-Rom is a copy of the Boycott Advance Gameboy Emulator[11].

Software already exists that allows users to create their own E-Books for the GBA. Developed by the Crowe Workshop, 'Book Reader' allows users to make a text file into an e-book that can be read on the Gameboy[12].

Figure 4 shows a screenshot of the Gameboy bookreader running on a Gameboy Emulator. This page is from the complete works of Sherlock Holmes by Arthur Conan Doyle. A number of other works are available on various websites that have been converted by users of book reader and made available to the general public. Book Reader allows books to be converted using the character set of several languages, Chinese; Korean; Japanese; and Hebrew. The font size can also be changed to make it easier to read. The text is displayed on the Gameboy display one page at a time in the same way one might view a slideshow.
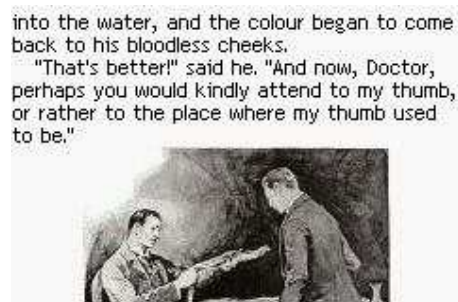
Figure 4: GBA Book Reader Screenshot

A first prototype for the comic book was created in a similar vein to the Gameboy e-book discussed earlier as a test for the viability of such an application on the Gameboy. A software package was used called GBA Jpeg Viewer[13]. Developed by Tony Savon, the GBA Jpeg viewer allows users to upload pictures to it for conversion into a GBA executable - ROM.

[11] http://boycottadvance.emuunlim.com/ - Accessed 3rd October 2005
[12] http://www.bookreader.co.uk/ - Accessed 3rd October 2005
[13] http://www.caimans.net/gba/ - Accessed 3rd October 2005

Two executables were created from this program. Both are slide shows of comic strips, Peanuts, which is in black and white, and Garfield, which is in colour. It was hoped that Jpeg viewer would provide more advanced scrolling between images that would preserve the spatial juxtaposition that was discussed earlier. The two programs entitled 'Peanuts Test' and 'Garfield' are available on the Gameboy cartridge provided with this project, they demonstrate the capability of the Gameboy to display black and white and full colour images, and demonstrate the use of the Gameboy as a handheld comic book viewer. However as neither of these fulfils the criteria for success, the prototype would need to be developed from scratch using a Gameboy development platform.

Gameboy DevKit Advance (DevKitAdv) is a development platform based on the GNU Compiler Collection (GCC). Having no experience of programming for this platform before a proportion of the work created for the prototype was based on the programs from tutorials at www.gbajunkie.co.uk with the controls in our first example modified to better represent how a user would view a comic strip, and with no constraints to controls in the second example to allow us to create the illusion of space. During the research process it was discovered that the work produced from completing the tutorials at this site could be re-used for our needs:

The screen of the Gameboy is only 240 x 160 pixels in size. This means that it is limited in terms of displaying a comic strip, let alone an entire page of a comic. As such the screen will act as the central focus of the comic, the comic will be in the form of a bitmap that is moved by the user around this central point. What we are attempting to create by doing this is an illusion of the comic book page or strip sitting behind a moveable window. The screen of the Gameboy becomes the window and allowing the user to move this over the graphic behind it maintains the awareness in their mind of the space the comic book occupies.

Figure 5 shows that the page would need to be reduced in size, but the entire bitmap has been drawn by the device and is accessible to the user using simple up, down, left or right scrolling on the Gameboy's keypad.

240px

160px

GBA Display

Page of Comic Book
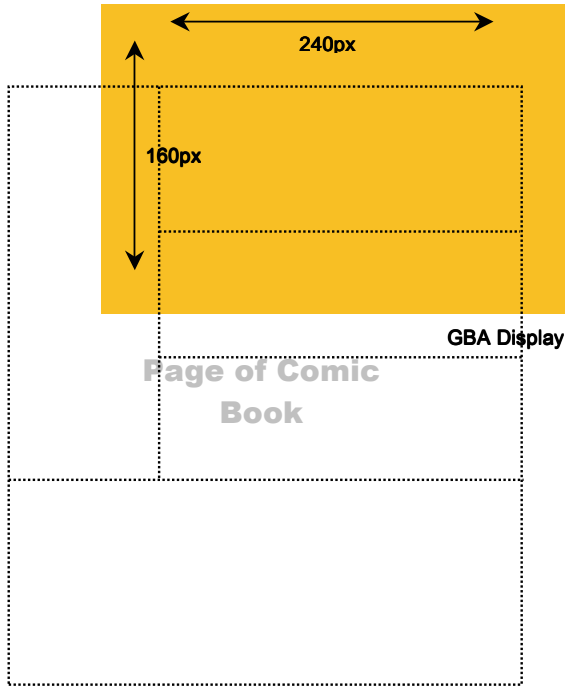
Figure 5: Focusing the Frame

In creating a comic book page that is viewed this way it maintains the spatial juxtaposition of the comic as every point on the page is still spatially related to one another. The only thing limited is the amount of the page seen at any one time.

The tutorials at gbajunkie.co.uk show us how to create background maps and display these on the Gameboy. The background map in this instance will be the comic book page. At any one time a background map of up to 1024 x 1024 pixels can be displayed on the screen - this should be adequate enough for showing a comic book page at a resolution that can still be read comfortably by the user.

Experimentation began with attempting to display single images on the Gameboy as one bitmap. This moved on to creating a single image background map, and then the display of an entire strip. Using a number of tools made available on the gbajunkie.co.uk tutorial site this was made possible:

Tool – (Developed By)	Description
GBA Map Editor – (Warder1)	A background consists of tile data and map data. Tiles are images 8pixels x 8pixels in size. Tiles are created from a larger bitmap. In a background map the tiles are combined in various positions on screen to create the effect of a larger picture. GBA Map editor was used to create this map on the screen and output it in a form that Gameboy can understand. The output from this program is an array of numbers positioning each 8x9 tile reference on screen.
Pcx2sprite – (Dovoto)	The tiles used for the background need to be converted into a format the Gameboy can understand. The larger bitmap (the tileset) used to create the tiles is converted by this program into a Gameboy header file containing palette and data arrays.

Table 2: Tools used to develop Gameboy prototype

Table 5 shows a list of the programs created. These are all available on the cartridge supplied with this project and in the directory on the CD-Rom marked ROMS, these can be opened using Boycott Advance which has also been supplied on the CD-Rom.

While experimenting creating maps using GBA Map Editor and creating a number of smaller less significant prototypes for the comic book it was discovered that the Gameboy would not prove to be a suitable device for viewing a comic book. While

Title	Description
Peanuts Test	JPEG Viewer Example
Garfield	JPEG Viewer Colour Example
Peanuts	Single Strip
Color Snoopy	Single Colour Frame

Table 3: GBA Prototypes

we have successfully digitised a comic strip and have this working as a comic on the Gameboy, it was found to be a more difficult process than expected, and this process could not be repeated for any strips or pages that contain any more data than the one we have converted:

A number of errors were experienced while trying to convert a comic book page 343 pixels in width by 512 pixels in height. While the map could be stored correctly for editing; the output into the Gameboy header was being corrupted. Reducing the image size to that in figure 6 – 254 x 202 pixels still returned the same error. Further research into the capabilities of the Gameboy revealed that its memory limitations could only draw 256 unique 8px x 8px tiles at a time (thus our original memory limitation concerns were

Figure 6: 8 x 8 pixel grid

confirmed). The image in Figure 6 is 32 tiles by 25 tiles; 800 tiles in total. Depending on the program used to create the individual tiles this could be reduced to 600 tiles with white space removed for every tile that converts successfully into another white space tile.
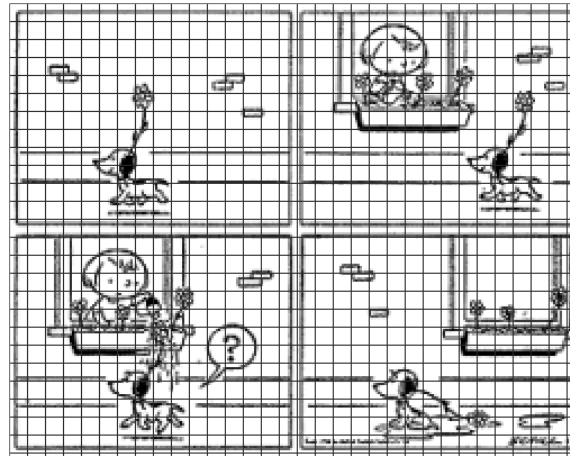
Unfortunately this problem was not revealed until a good amount of testing prompted looking further into the capabilities of the Gameboy. While any number of 240 x 160 images can be displayed one by one on the Gameboy display[14], we required the specific use of a graphics mode called Mode 7[15] that allows for the rotation and scaling of bitmaps – using Mode 7 graphics would allow the user to explore the space the comic strip occupies, thus preserving the spatial juxtaposition and the temporal flow of the comic. Mode 7 graphics are what put the memory limitations on the Gameboy to only handle 256 unique 8 x 8 tiles. The strip that was successfully digitised was chosen specifically for the amount of white space in it. The single colour frame was produced as a token to show the Gameboy's capability to handle colour and the ability to move the bitmap behind the screen, or 'window' creating the illusion of space in the users mind.

The second digital prototype would be created using Macromedia Flash:

The inspiration for using Flash to produce a prototype this way came from two existing sources:

1. www.tate.org.uk/britain/exhibitions/rodney/sketchbooks.htm
2. www.activepoint.com/maplincatalogp9/enter.html

These two websites show examples of flash flip books with full user interaction in how they open each page, and flip through the available pages. The Donald Rodney sketchbooks by the Tate gallery provide a photographic representation of the artist's sketchbooks that can be interacted with virtually. The user can open the books up and using the mouse, flick through the pages at will and use the book in a way that would not be possible in the gallery because of the wear and tear that would be put on such a book.

The ActivePoint example is a digitisation of a retail catalogue. This also works using a flipbook mechanism allowing the user full interaction when browsing the pages, it also incorporates a feature allowing users to click on individual items in the catalogue, clicking on an item brings up a larger view of the item and its details in a separate window on the side of the animation, see figure 7:

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[14] Limited in this case by storage space on a cartridge rather than graphical memory
[15] http://en.wikipedia.org/wiki/Mode_7

Figure 7: Maplin Catalogue by ActivePoint

In a comic book the 'detail window' could be analogous to an individual frame, allowing a user to view the frame in better detail and in a higher resolution.

The prototype being created using Macromedia Flash is not going to be an imitation of these, rather it is created with a view to possibly integrate some of these features in future. The realistic representation of the book and the pamphlet in examples one and two respectively, may provide for us a better method of representing a comic than in this prototype, however it could be argued that the detail provided by either edition is not good enough for viewing either of these books in any great detail, it could also be argued that by having an individual popup window for an individual frame in a comic takes away from the temporal map in the comic and therefore would not be a suitable device to employ.

The prototype created focuses on the movement and transition of frames; it allows the user to focus on the page as closely as possible while preserving the spatial juxtaposition and temporal map throughout the comic. It is based on a similar technique employed in the Gameboy prototype of the users themselves exploring the space the comic occupies, however it draws from the power of Flash to animate the transition between one frame and the next. It also employs flash scripting language to provide basic navigation capabilities. Flash can be used to bind digitised images of the comic book into one digital book fairly easily, the ultimate idea to create some form of executable that can be used on any platform.

The comic book was scanned at a resolution of 300 Dpi. The image of each page was stored as a Tiff file. The Tiff file format was chosen, as it is a non-propriety file format allowing for greater access across a greater number of platforms. These images were made read only and will provide our master copy of the pages in the comic.

Copies of these tiff images were resized and stored as Jpegs for use within the Flash animation. The images were reduced by 67% length and width so that the width and height of the comic fits on screen. The Jpeg adopts Huffman encoding with a compression factor of 15.

Importing the images into flash, the animation was created by focusing on a central point on the screen and moving the bitmap around this central point. Individual spots on the page of the comic book were highlighted as important positions where the reader would focus their attention. The animation would transition from one spot to the next following the temporal map throughout the page. Navigation elements were put into the comic to allow the user to go from one transition to the next, to the first or last transition on the page, or to skip one page back and one page forward.

The final prototype created using this method can be found in the folder Flash Prototype on the CD-Rom supplied with this project.

Flash will create an executable from animation that wraps it into a standalone flash player, this will run on either a Windows based PC or Apple Macintosh. It is also possible to place the animation in a web page for wider access across the Internet through a web browser with the correct plug-in.

Discussion

There were four criteria to be used to Judge the success of the digital prototypes created in this project:

1: Spatial Juxtaposition
2: Preservation of Form
3: Preservation of handheld nature of the comic
4: Focus of reader's attention

Neither of the prototypes fulfilled all four.

The strongest prototype to come out of the research was the Macromedia Flash comic. Looking at this prototype the Spatial Juxtaposition and the temporal map have been preserved, arguably readers attention has been focused purely on the comic and the form has been preserved to a certain extent. Discovering whether it focuses users attention on just the comic will require testing the prototype on various users, something that fell beyond the scope of this project.

Adopting basic user controls the Macromedia Flash comic manages to present an entire comic preserving the detail from inside the comic. It manages to resolve the issue of resolution on a computer monitor but the transitions between frames are arguably too many and do not allow the user to roam the space the comic book occupies with their eyes enough.

The controls are comprehensive in this model but fail to implement a key for moving back a single transition to the last point in the comic book. This would need to be added to a more flexible version.

It is arguable whether the comic does maintain its form or not. The comic maintains its structure and allows users to flick pages one by one, go to the front or back of the comic at the press of a button, but we loose any representation of the comic binding, and representation of the 'physical' navigation of the comic, i.e. the movement of flicking the pages, opening, closing etc. And we cannot implement this technique to make the comic hand held.

The Gameboy comic was less successful due to memory restrictions. The two slide-show prototypes proved to be effective models for what it was hoped could be achieved using the Gameboy, however what we managed to create as an end result on this platform was not so promising.

The navigation of space and the handheld nature of the comic strip and frame on the Gameboy provide a strong argument for following this route into further development, however slow loading times were experienced and the movement of the strip on screen was too slow for comfortable reading. It is also difficult to judge whether we managed to preserve the form of the comic strip using this method and if users attention could be focused by such a version or not.

The comic strip in its one of its natural states will be found in a newspaper, where it will be surrounded by other strips, puzzles, horoscopes. This presentation of the strip on the Gameboy is limited in any roaming with the eye above or below the strip, and moves very slowly to the left and right.

In further work it may be worth following a route combining the work of both these examples. Using a hand held device but creating some sort of automation in the movement of the strip that although reduces the amount of freedom a user has to explore a page, will arguably remove a sense of artificiality in having to move the page freely and uncomfortably around with the keys on the handheld device.

The distribution of the questionnaire for this project managed to return a large amount of data. Out of 383 participants who viewed the survey, 75% started the survey, and 38% participants completed it. The sample we used to distribute the survey was fairly limited in scope focusing mainly on distribution throughout message boards relating in someway specific to comic books. Further work in this area should see the refinement of the questionnaire and its distribution among a wider sample range and size.

The results of the survey warrant a discussion in their own right but some of the more interesting results showed the use of existing digital versions were actually quite widespread. There was a lot criticism of these editions but most were outweighed by the access provided by them and the fact they were free. Some results showed an unwillingness to use digital comic books, which goes to highlight the value in the physical form of the comic book itself.

Conclusion

During the course of this paper the comic book has shown itself to be a strong reflection on the society in which it was created. Out of context the comic can be seen as a rich and interesting method of expression. Within context the comic book can take on profound meanings to those reading it, which has its own influence on that particular individual.

The comic book has shown to be influenced by culture and itself influence culture. In as much as the ideas expressed within the comic the material nature and the format of the comic book also changes. The comic book in the past has been written off as being simplistic and crude and lacking artistic or literary merit. They have also been criticised as being colourful and their format quick and easy to read. Looking into the comic book however and realising that they are far from quick and easy to create, sometimes as many as 5 people working on one graphic novel (Writer, Artist, Penciller, Inker, Letterer), it becomes apparent that they are a rich source of cultural and historical evidence.

A questionnaire was designed in an attempt to gain further insight into comic books and how they are used. 49 Questions were designed for the survey covering a broad spectrum of areas primarily focusing on what value the reader finds in the medium. The survey looked to discover how comic books are used; clues to why comic books survive so well over the years; the view of the readership on the potential of a digital comic book; what they would like to see introduced to a digital edition and what experience they already have of using digital comic books; opinion of comic books next to classical literature and art. The questions can be found in appendix ii.

Once the original question set had been devised a limited pilot of the survey was completed on two participants to see if the questions were answerable and the survey as a whole was not too demanding. A number of small changes were made to the questionnaire to make it more coherent but the response from the first two participants was generally good. With more time available this second question set would have been tested on further participants to make sure no further errors were introduced.

The final survey was published on the Internet using online survey software and hosting service: www.questionpro.com - accessed 25th September 2005. A link was published with general access to the questions. The survey software formatted the survey so it could be filled out and the results stored, available for access online.

The survey link was distributed online using a number of web forums:

Link	Forum
http://www.imdb.com/title/tt0094625/board/threads/	Akira (1988)
http://www.imdb.com/title/tt0372784/board/threads/	Batman Begins (2005)
http://www.imdb.com/board/bd0000052/threads/	Books
http://www.imdb.com/title/tt0360486/board/threads/	Constantine (2005)
http://www.imdb.com/title/tt0120667/board/threads/	Fantastic Four (2005)
http://www.imdb.com/board/bd0000007/threads/	Film General
http://www.imdb.com/name/nm0588340/board/threads/	Frank Miller
http://www.imdb.com/title/tt0259324/board/threads/	Ghost Rider (2006)
http://www.imdb.com/title/tt0421357/board/threads/	Hagane No Renkinjutsushi (2003)
http://www.imdb.com/title/tt0347149/board/threads/	Hauru No Ugoku Shiro (2004)
http://www.imdb.com/name/nm0594503/board/threads/	Hayao Miyazaki
http://www.imdb.com/title/tt0112159/board/threads/	Shin Seiki Evangelion (1998)
http://www.imdb.com/title/tt0401792/board/threads/	Sin City (2005)
http://www.imdb.com/title/tt0413300/board/threads/	Spider-Man 3 (2007)
http://www.imdb.com/title/tt0121766/board/threads/	Star Wars: Revenge of the Sith (2005)
http://www.imdb.com/board/bd0000012/threads/	TV General
http://www.imdb.com/title/tt0468569/board/threads/	Untitled Batman Begins Sequel (2008)
http://www.imdb.com/title/tt0376994/board/threads/	X-Men 3 (2006)
http://www.superherohype.com/forums/forumdisplay.php?f=33	Super Hero Hype! Boards

Table: Internet Message Boards used for Distribution of the Comic Book Survey

The message boards used were chosen for their connection to comic book culture, current popularity and number of regular visitors, they were also chosen to make the population sample as varied and as wide ranging as possible.

Within each message board the following message was posted to direct users to the survey link:

Hey everyone - I'm doing this project about comic books for uni and was wondering if there was anyone who is interested would like to fill in this questionnaire I have made about them: http://www.questionpro.com/akira/TakeSurvey?id=277666 . The project is mainly looking at comic books and their place in modern culture with regards to other forms of expression i.e. Manga, film, books and animation, and their place in culture as a whole. I'm looking to see what everyone's opinions of comic books are and everyone's views on them, whatever the opinion would be greatly appreciated.

Thanks in advance to everyone who replies.

A further message was posted to thank participants for their time and with the hope of increasing the sample size:

Thanks to everyone that has replied to this survey so far. I have had a great response already. The survey is still going to be running for a number of weeks yet, if anyone else wishes to participate that would be great.

Thanks to everyone in advance, and to all those who have given their time to complete it already.

Upon following the link users were presented with a formal introduction to the research and a disclaimer about the nature of the survey and the use of results:

Hello:

You are invited to participate in our survey on Comic Books and Contemporary Culture. In this survey, you will be asked about comic books and your view of their effect on modern culture. It will take approximately 20-30 minutes to complete the questionnaire.

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions.

Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact Ross Spencer at the email address specified below.

Thank you very much for your time and support. Please start with the survey now by clicking on the Continue button below.

Although a lot of information was asked from those who took the survey in the form of fixed and open-ended questions the sample size was reasonably large. Out of 383 participants who viewed the survey, 75% started the survey, and 38% participants completed it.

The way that we have conducted the survey and its exploratory nature, (open ended questions looking for general and popular opinion on the comic book), it has only been used to provide ideas about the nature of the comic book and to help reveal more about current opinion and patterns of behaviour. The, results can however be taken to aid us in the creation and organisation of a further structured questionnaire, where the implementation of better controls will allow us to use the results more practically in our research. The results of the questionnaire can be found on the CD-ROM provided with this project under Numerical Data.html, and Open Ended Data.html.

[Disclaimer will go here]

1. Age: **[open box]**

2. Sex: **[m/f]**

3. Ethnicity: **[open box]**

4. Do you or have you ever read comic books? **[y/n]**

5. If yes do you/did you read comic books: **[regularly/not very often/rarely]**

6. From which decades have you read comics from?

[Multiple Choice: *30's / 40's / 50's / 60's / 70's / 80's / 90's / 00's*]

7. Do you read Japanese Manga? **[y/n]**

8. Do you see a difference between western comic books and manga? **[y/n]**

9. If so what are the main differences you see? **[open box]**

10. What type/genre of comic books do you read? [multiple choice]

[Multiple Choice: *Mystery / crime / romance / comedy / westerns / educational / superhero / classical adaptations / horror / alternative / underground / sci-fi / strips / other…(what?)*]

11. What interests you about comic books? (i.e. artists, writing, style, character, genre etc.) **[open box]**

12. Do you have a favourite publisher/s and/or artist/s? **[y/n]**

13. If so who? **[open box]**

14. Do you have a favourite comic book/s /manga/s? **[y/n]**

15. If so what, by who? **[open box]**

16. Where do you get your comic books? (i.e. shop, library, borrow, buy etc.) **[open box]**

17. Other than buying comic books have you experienced other ways to obtain/read comic books? **[y/n]**

18. If so what other ways have you found? **[open box]**

19. When and where do you like to read comic books? **[open box]**

20. Have you ever read comics online? (if no please skip to Question 24.) **[y/n]**

21. What were your experiences of reading them this way and what online service did you use? **[open box]**

22. Would you like to see more comic books available online? **[y/n]**

23. Are there any features that you would like to see added or removed from these? If so what? **[open box]**

24. Would you be interested in reading a digital comic book? (i.e. on CD-Rom, PDA, Handheld Device, Online etc.) **[y/n]**

25. If so, what features would you like to see included? (i.e. searchable story lines, searchable characters, information about artists, background story to comic etc.) If not, what issues would stop you from reading a digital comic book? **[open box]**

26. Are you familiar with classical art and literature? (i.e. do you read it, look at it, study it, etc.)

27. Do you think that classical art and literature are important? Why?

28. Do you think that comic book art and artists can be compared/are worthy of comparison to classical artwork and artists? **[y/n]**

29. Why? **[open box]**

30. Do you think that comic books/manga can be compared/are worthy of comparison to classical literature?

31. Why? **[open box]**

32. What are your main reasons for buying a comic book? (i.e. artist, publisher, story, storyline, etc.) **[open box]**

33. Why do you think comic books from as far back as the 30's still survive until today? **[open box]**

34. What do you do with a comic book after reading it? **[open box]**

35. Do you think that comic books/manga are more accessible to one sex or another? Why? **[open box]**

36. Have you been criticised for your interest in comic books? **[y/n]**

37. Do you have friends that share your interest in comic books? **[y/n]**

38. Are your family and friends who are not involved with comic books supportive of your interests? Why do you think this is the case? **[open box]**

39. How do you think non-fans view comic books? Why? **[open box]**

40. What do you think are the reasons some people don't like/understand comics? **[open box]**

41. Do you feel comic books are universally accessible? Why? **[open box]**

42. Do you interact with others about comic books? How, in what ways? (i.e. Conventions, Friends, Web-Forums, Societies etc.) **[open box]**

43. Do you experience comic books and comic book culture in other ways than reading them? (i.e. related books, magazines, websites, web forums, creating your own, etc.) If so, please use this space to elaborate. **[open box]**

44. On a scale of 1 - 10 how important are comic books to you? **[scale]**

45. On a scale of 1 – 10 how important do you feel comic books are to contemporary culture? **[scale]**

46. Is there any specific relevance in which you feel comic books contribute to contemporary culture? Please elaborate. **[open box]**

47. Do you watch comic book based movies or animation?

48. What are your views on these two platforms with regards to comic books? (i.e. how successfully they translate, how closely they follow storylines, how much detail they give, particularly good translations etc.) **[open box]**

49. Is there any other way comic books have affected your life? (your point of view, your interests, your hobbies, making friends etc.) Or any other story or anecdote you would like to share? Please use this space to elaborate. **[open box]**

** Participants were also asked if they would be interested in answering further questions through email at a later stage. Their email addresses have been kept confidential.

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