
United Universe: A Second Screen Transmedia Experience

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Abstract

United Universe is a second screen transmedia experience aimed at supporting understanding of a complex storyworld presented across media artifacts. Using the highly interconnected and allusive Marvel Cinematic Universe as a primary example, *United Universe* abstracts a story into the fundamental elements of characters, events, items, and locations, and presents them in a “glanceable” manner to the interactor. As significant story elements are referenced, the application provides explanatory information on the second screen. Drawing from the larger story world made up of multiple comic books, movies, games, and television shows, *United Universe* aims to provide clarity and background for the novice, and depth and engagement for more knowledgeable viewers.

Author Keywords

Second screen; transmedia; television; film; cinematic universe; interactive television; media evolution.

ACM Classification Keywords

H.5.2. Information interfaces and presentation: User Interfaces; User-centered Design

Introduction

Transmedia storytelling is defined by Henry Jenkins as “a process where integral elements of a fiction get dispersed systematically across multiple delivery

channels” and creating a connected and coordinated entertainment experience. [10]. The Marvel Cinematic Universe (MCU), in particular, is a highly expansive and intricately woven transmedia storyworld, extending from comic books to cinema and television, both of which challenge viewers by referencing story elements that cross mediums. Currently, the MCU consists of ten films, with twelve more announced for release between February 2015 and July 2019. In addition, two MCU television shows are airing on ABC, and there are five MCU-based Netflix shows planned to release over the next two years. The films in the cinematic universe have grossed over seven billion dollars worldwide, and the *Agents of S.H.I.E.L.D.* television show averages 8.3 million viewers per episode [1, 13].

Television often provides an entire social world to viewers, including the emotional and empathetic reactions of the human experience, provoking highly active engagement in fictional worlds [10, 15]. Comic book fans have well-known appetites for sharing extensive knowledge, engaging in fan fiction to prolong and intensify their engagement with these alternate worlds. New York ComicCon, the largest comic convention in America, brings in over 150,000 fans annually [3]. There is clear interest from fans to become immersed in the storyworld in ways that expand beyond the classic television screen.

According to The Nielsen Company, 70% of tablet owners and 68% of smartphone owners say that they use their devices while watching television. With this tendency to multitask, there are many opportunities to integrate users’ second screens into their viewing experiences, but users are not satisfied with existing aids [11]. This research, along with our user studies,

suggests that users can increase their engagement with long-form narrative television content by using second screens to seek more contextual information.

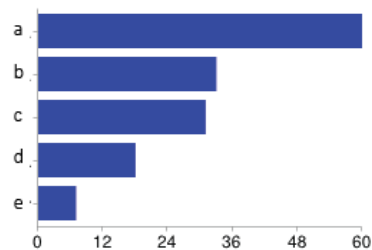
Previous Work

Other researchers have identified uses for second screen devices that include “learning and content selection.” [4, 8] Users can view more information about specific items or repeat information they may have missed. In addition, users may personalize that information by organizing it in a way that enhances their experience with the main content. This led us to develop a prototype that allows viewers to navigate through information about *United Universe* characters, events or items they choose. This can serve both new viewers by prompting them of references they may not otherwise catch as well as existing viewers by serving as a reminder and exploratory tool.

Television shows oftentimes present concepts to viewers that require knowledge of previous episodes or seasons. Second screens are a potential way to close the information gap as long as they are designed in a minimally-interruptive fashion. Cruickshank et al. point out two major advantages in employing a second screen: 1) the device’s mobility and 2) the ability to reduce clutter on the main screen. [6] While the authors focused on reducing visual clutter on the main screen, we believe this is also an opportunity for the second screen to reduce content clutter.

Other approaches to contextual information with a second screen have primarily focused on the exploration of character relationships. *Story Map*, a second screen experience developed at Georgia Tech’s Experimental Television Lab, is a system developed for the television show, *Justified*, and focuses on

What do you hope to learn about when consulting outside sources? (Multiple answers allowed)



- a. More details about the show/movie's fictional universe: 67.4%
- b. How the movie/TV show was made: 37.1%
- c. Clarification about what happened in the program: 34.8%
- d. I don't use any additional sources: 20.2%
- e. Other: 7.9%

Figure 1:

Survey responses show that 67% (60 participants) of those who looked up information on a second screen while watching a TV show or film are "seeking further information on the storyworld," followed by "how the show was made," "clarification about what just happened," "I don't use additional sources," and "other."

synchronously informing the viewer of character relationships and referenced events [7]. Although the content is timely, it is not easy to take in at a glance. Navigation requires precise actions which divert the viewer's attention away from the television screen. Our objective is to create a second screen that responds quickly to a limited set of targeted touchscreen gestures, keeping the viewer focused on the show. *United Universe* includes character and event information, but goes beyond *Story Map* by expanding the coverage to locations and fictional items.

Many official Marvel applications have been designed for smart phones and tablets as well, including capacious compilations of Marvel comic lore and large-scale games [12]. In addition, there are various unofficial, fan-made apps for *Agents of S.H.I.E.L.D.* and other stand-alone storylines. However, this content is heavily focused on comic books, and there is currently no app that integrates live viewing of media with the expansive knowledge one might desire as significant story elements are referenced across mediums.

User Research

In the early stages of development for *United Universe*, we conducted user needs research through an online survey. This survey focused on television viewing habits and second screen behaviors, alongside experiences with films or television shows within the MCU.

From the survey, 63% of viewers stated that they utilize a second screen device while watching Marvel content. Although results showed mixed responses as to what the second screen was used for, we believe this is partially a result of existing solutions failing to

support the "glanceability" a second screen should provide.

If additional content within the MCU is desired by the viewer, more than 67% of individuals would seek more information specifically about the storyworld (see Figure 1). Based on these findings, it was important not to extend the MCU information to non-diegetic elements of the TV shows/films (i.e. "Behind the Scenes") and to provide an unobtrusive, passive experience for the viewer while engaged in a show. Additionally, the survey results supported the need for a system that provides additional information to accompany the viewing of a single piece of media in the MCU. In response to these findings, we framed the following research questions to build our prototype: 1) How do you provide contextualized information for a dense transmedia storyworld without overwhelming the viewer? 2) How do you explore connections between heterogeneous narrative components?

United Universe

Overview

In order to orient viewers to a storyworld that runs across multiple media artifacts, we drew on abstract descriptions of story elements proposed by the branch of literary criticism known as narratology [5]. We identified four story element categories that helped define the fictional landscape and link the comic books, films, and television series to one another: events, locations, items, and characters. In *United Universe*, these four categories of story elements, called "blips," are interactive, coin-shaped data sources (color coded by category), and are indicated by a marker that appears on the main screen video to indicate synchronized content on the tablet screen.

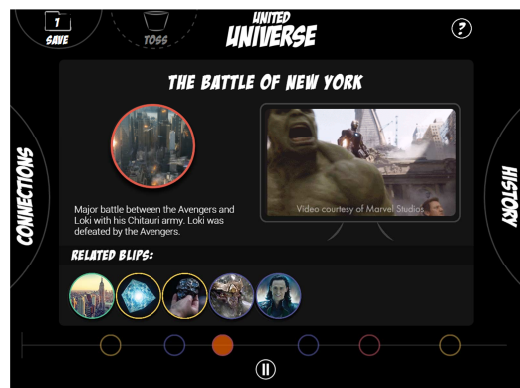


Figure 2: Detail View (center) with featured blip, description, edited supporting video, and related blips; Timeline (bottom) synced with main screen video.

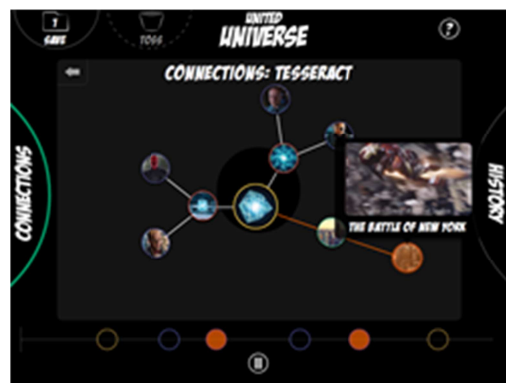


Figure 3: Connections View after selecting a blip to view its connection to the “Tesseract.”

The MCU is explored by dropping blips into “buckets” marked as Connections, History, Save, and Discard. These buckets are placed along the sides of the tablet, providing rapid and deliberate actions that do not require precise movements from the interactor.

For our prototype, *Agents of S.H.I.E.L.D.* was chosen as the media source. It is the first television show connected to the MCU, and the ties between this show and previous Marvel films are extensive. For example, the “Battle of New York” is a climactic final fight in *The Avengers*, and it is referenced more than four times within the first two episodes of the show. Additionally, the Tesseract and a Chitauri Neural Link - two key items in the “Battle of New York” - are referenced throughout early episodes. S.H.I.E.L.D., the organization on which the show is based, is a law-enforcement agency in the MCU that deals with paranormal and superhuman threats. In this fictional world, they protect the public from the knowledge and use of items such as the Tesseract and Chitauri Neural Link. Items like these are the reason why S.H.I.E.L.D. exist, but any viewer of the show who has not seen *The Avengers* would be overwhelmed by several unexplained references.

Features

DETAIL VIEW AND TIMELINE

Detail View is the default screen in *United Universe*. It displays the featured blip with a brief description, a 6 second edited supporting video, and a list of blips directly related to it.

A timeline runs across the bottom of the second screen app and updates the tablet screen with the Detail View of a blip as it is referenced in the main screen video (see Figure 2). To avoid spoilers, there are no images on the timeline - only the color to let the interactor know what type of blip will be triggered. To access a timeline blip before it appears on the screen, the interactor may tap to view it in Details View.

CONNECTIONS VIEW AND HISTORY VIEW

The primary views to contextualize blips within *United Universe* are the Connections View and the History View. These two views augment the viewer’s understanding of a blip by visualizing its relation to other story elements.

Connections View extends the “related blips” section of Detail View and allows the interactor to explore extensive relationships between story elements of all types. This answers key questions regarding character relationships with one another, key characters involved in significant events, where important items have been used, etc.

To interact with Connections View, the user may tap on a blip for its name (and alias, if applicable). If there are multiple instances of the same blip within Connections View, each instance will be highlighted on the tablet (see Figure 3). In addition, the interactor may tap on the lines connecting blips to view a brief description of their relationship. If the interactor wants to update Connections View with a new blip, they may drag their selection from its initial position to the center.

History View is a way for the interactor to understand the storyline of a particular blip (see Figure 4). All

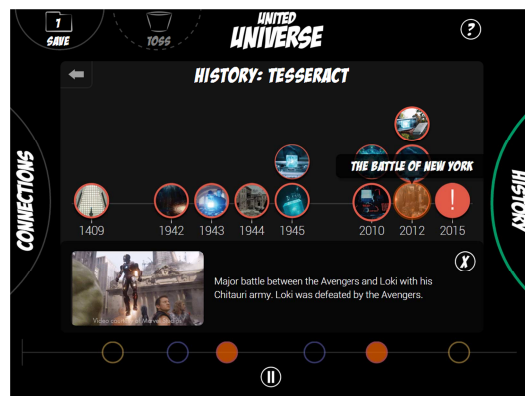


Figure 4: History View with blip description.

events associated with the selected blip are presented chronologically on a timeline, and allow the interactor to watch or read its path throughout the MCU.

SAVE AND DISCARD

A save feature preserves information without requiring immediate interaction from the viewer. If the interactor would like to remember a particular blip, s/he may drop it into the top left bucket and it will be added to a list. Unlike the timeline which only displays blips that are referenced in the main screen video, the saved folder can store all blips within the MCU. Furthermore, the interactor may drop a blip into the “Toss” bucket, removing

undesired blips from the timeline and main screen.

TECHNICAL IMPLEMENTATION

United Universe was developed using HTML5, CSS3 and JavaScript, with animation developed using the Velocity.js library. To sync playback across screens, the system incorporated Node.js. Timing information from the main screen video was stored and referenced by the server, which then signaled events to the iPad.

Blip data was modified from the MCU Wiki, a community site dedicated to all MCU films, TV shows, and story elements associated with them [14]. This blip information was custom structured into a json format.

United Universe was designed with a modular layout that is easily customizable for development beyond the MCU. In our initial prototyping phase, we also utilized *United Universe* for ABC’s *Once Upon a Time* storyworld which deals with complex character relationships and intertwined storylines across parallel worlds.

Testing

A formative evaluation was conducted in December 2014 with five individuals in the television industry to assess both the design of the system and the abstraction of story elements into blips. Participants were asked to perform a specific set of tasks and provide their reflective opinions about the system afterward. In addition, a heuristic evaluation following the same structure was performed with 6 Human-Computer Interaction graduate students to further refine the structure of the interface.

Feedback from participants validated the taxonomy of the storyworld, since the questions participants had about the excerpted TV show were answered with the *United Universe* prototype.

Testing also surfaced a UX Design problem with the metaphor of “buckets.” Initially, participants interpreted the buckets as “panels” or “buttons” that would slide out from each direction of the screen. As a result, we redesigned the interface and added animations that reinforced the metaphor of placing the coin-like blips into bucket-like areas of the screen. The bucket design was modified to be more circular in addition to animating outward if a blip was dragged on top, providing a clearer visual indicator of user affordances. Animated transitions between views were also added to reinforce the system’s current state.

Future Work

We continue to develop the UX Design of *United Universe*, ensuring that users learn about the MCU while reading minimal text. We also plan to acquire information from the Marvel comics which could help the interactor understand how MCU story elements compare to the comic book counterparts on which they

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are based. We received feedback suggesting use of the framework for educational applications, which we are considering in the context of television news coverage.

Conclusion

With the rise of transmedia storytelling in the entertainment industry, there is an increasing need to curate this content into a contextualized format. The *United Universe* prototype is a way of exploring the design issues raised by the challenge of maintaining coherence while encouraging exploration of densely interconnected narrative worlds.

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